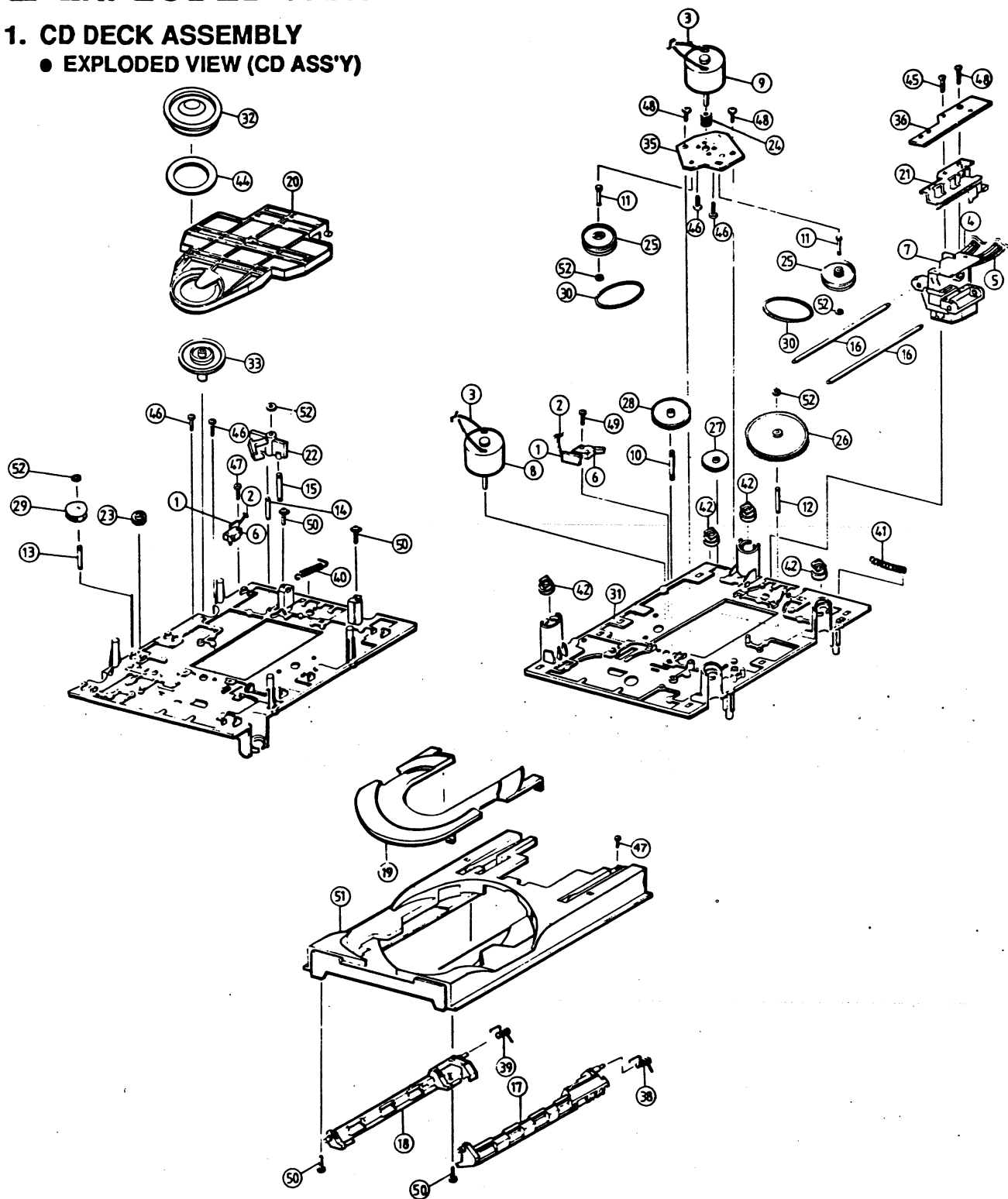




BESTELL-NR.	0350520
GERAETEBEZEICHNUNG	UNIV.-POWER-PACK
WARENGATTUNG	652
AUSFUEHRUNGS-NR.	001
GERAETEBESCHREIBUNG	
PRIVILEG	VTCF 4617
LIEFERANTEN-NR.	205476
PREIS	998.00
KATALOG	914
GARANTIEZEIT	6
KD-SEKTOR	R
HEIM/BRINGE	WERKSTATT
BETREUUNG	EIGEN
KOSTENTRAEGER	EIGEN
REPARATURFAEHIG	JA

● **EXPLODED VIEW (CD ASS'Y)**



3. CD

1) MEASURING INSTRUMENT

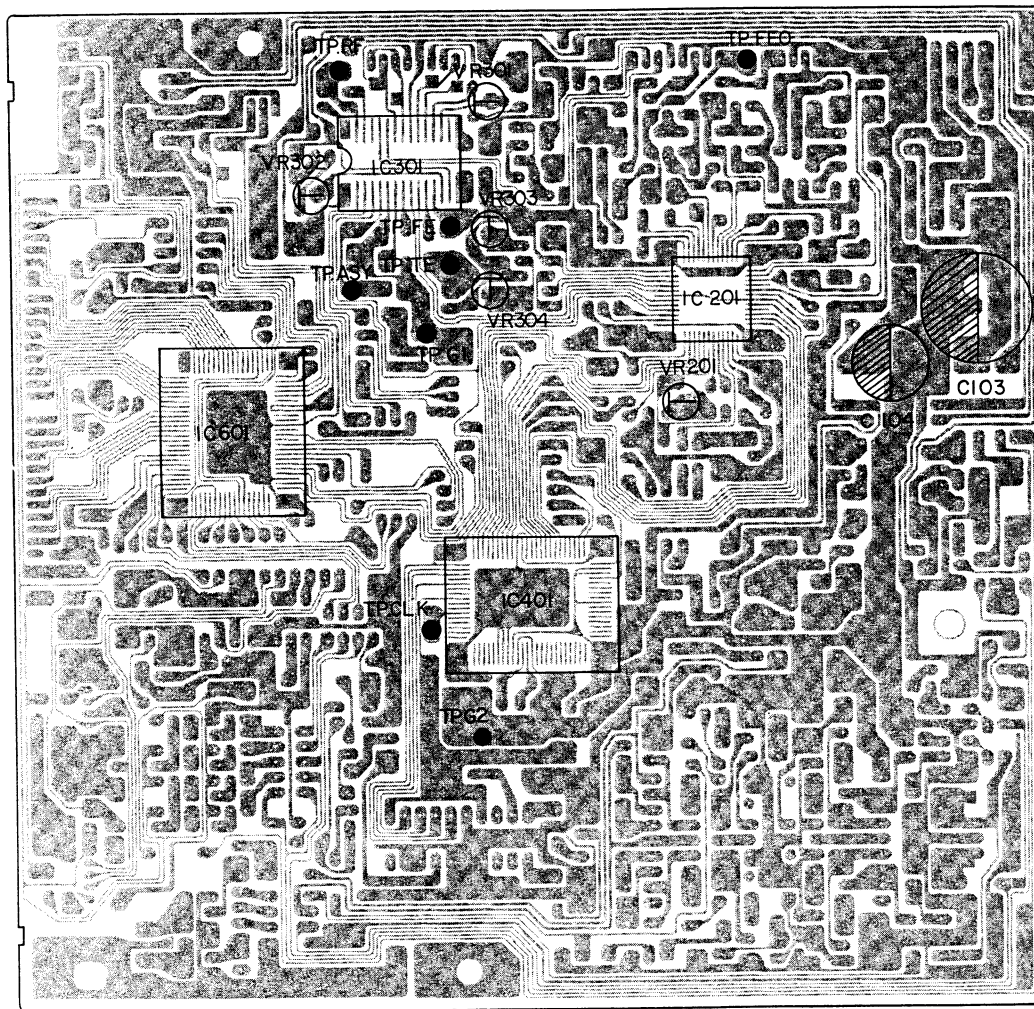
- 1) Oscilloscope (100MHz $\geq$ Frequency)
- 2) Probe (10 : 1)
- 3) Frequency counter

2) IMPORTANTS

- 1) Semi-Volume position can be a little different according to unit.
- 2) Be sure not to use a warped or dirt-build up disc in adjusting.
- 3) When adjusting Semi-Volume, use plastic screw driver.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

CD PCB



VR201 : CLV adjustment
VR301 : E-F balance adjustment
VR303 : Focus gain adjustment
VR302 : Focus bias adjustment
VR304 : Tracking gain adjustment

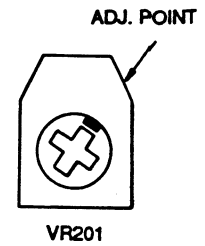
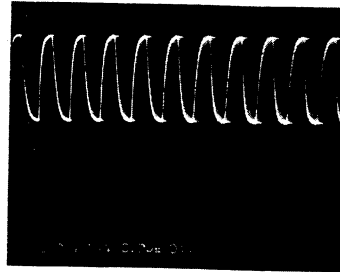
TP.FE : To oscilloscope signal port
TP.TE : To oscilloscope signal port
TP. CLK : To oscilloscope signal port
TP.G1 : To oscilloscope GND port
TP.G2 : To oscilloscope GND port

4) ADJUSTMENT PROCEDURE

(1) CLV ADJUSTMENT

- ① Turn power on and load a disc.
- ② Frequency counter connection
(+) terminal ; TP. CLK
(-) terminal ; TP. G2
- ③ Connect TP.ASY to TP. G1
- ④ Adjust VR201 so the frequency counter reads 4.38 ~ 4.40MHz. (Adjust in stop mode)
- ⑤ Disconnect TR. ASY from TP.G1

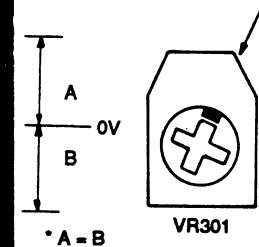
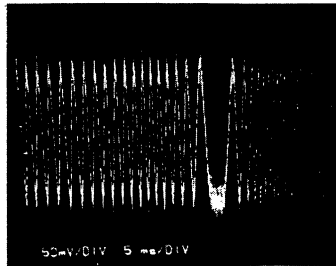
CLV



(2) E-F BALANCE ADJUSTMENT

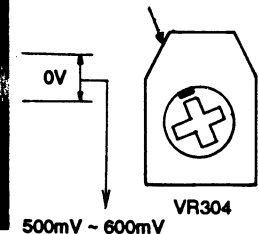
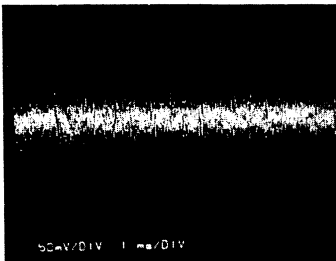
- ① Turn power on and load a disc.
- ② Press play.
- ③ Oscilloscope setting and connection
VOLT/DIV ; 50mV { (+) terminal ; TP.TE
TIME/DIV ; 5mS { (-) terminal ; TP. G1
- ④ Adjust VR304 fully counter clockwise
- ⑤ Adjust VR301 so the waveform is as shown in the picture.
- ⑥ Set VR304 back to the place it was before adjustment.

E-F BALANCE



(3) TRACKING GAIN ADJUSTMENT

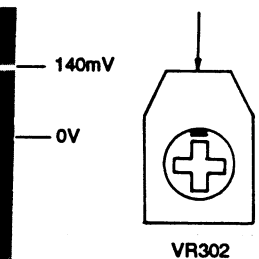
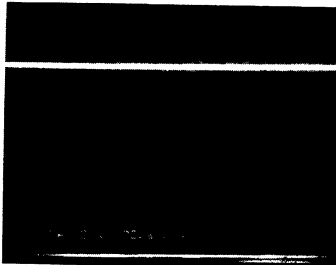
- ① Turn power on and load a disc.
- ② Press play.
- ③ Oscilloscope setting and connection
VOLT/DIV ; 50mV { (+) terminal ; TP.TE
TIME/DIV ; 1mS { (-) terminal ; TP. G1
- ④ Adjust VR304 so the peak to peak waveform is as shown in the picture.



(4) FOCUS BIAS ADJUSTMENT

- ① Turn power on and load a disc.
- ② Oscilloscope setting and connection
VOLT/DIV ; 10mV { (+) terminal ; TP.FE
TIME/DIV ; 20 μS { (-) terminal ; TP. G1
- ③ Adjust VR302 so the waveform is as shown in the picture. (Adjust in stop mode)

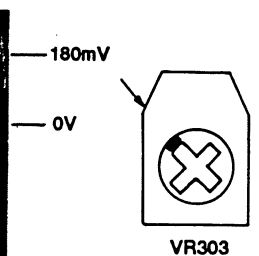
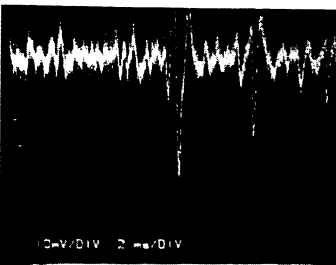
FOCUS BIAS



(5) FOCUS GAIN ADJUSTMENT

- ① Turn power on and load a disc.
- ② Press play.
- ③ Oscilloscope setting and connection
VOLT/DIV ; 10mV { (+) terminal ; TP.FE
TIME/DIV ; 2mS { (-) terminal ; TP. G1
- ④ Adjust VR303 so the peak to peak waveform is shown in the picture.

FOCUS GAIN

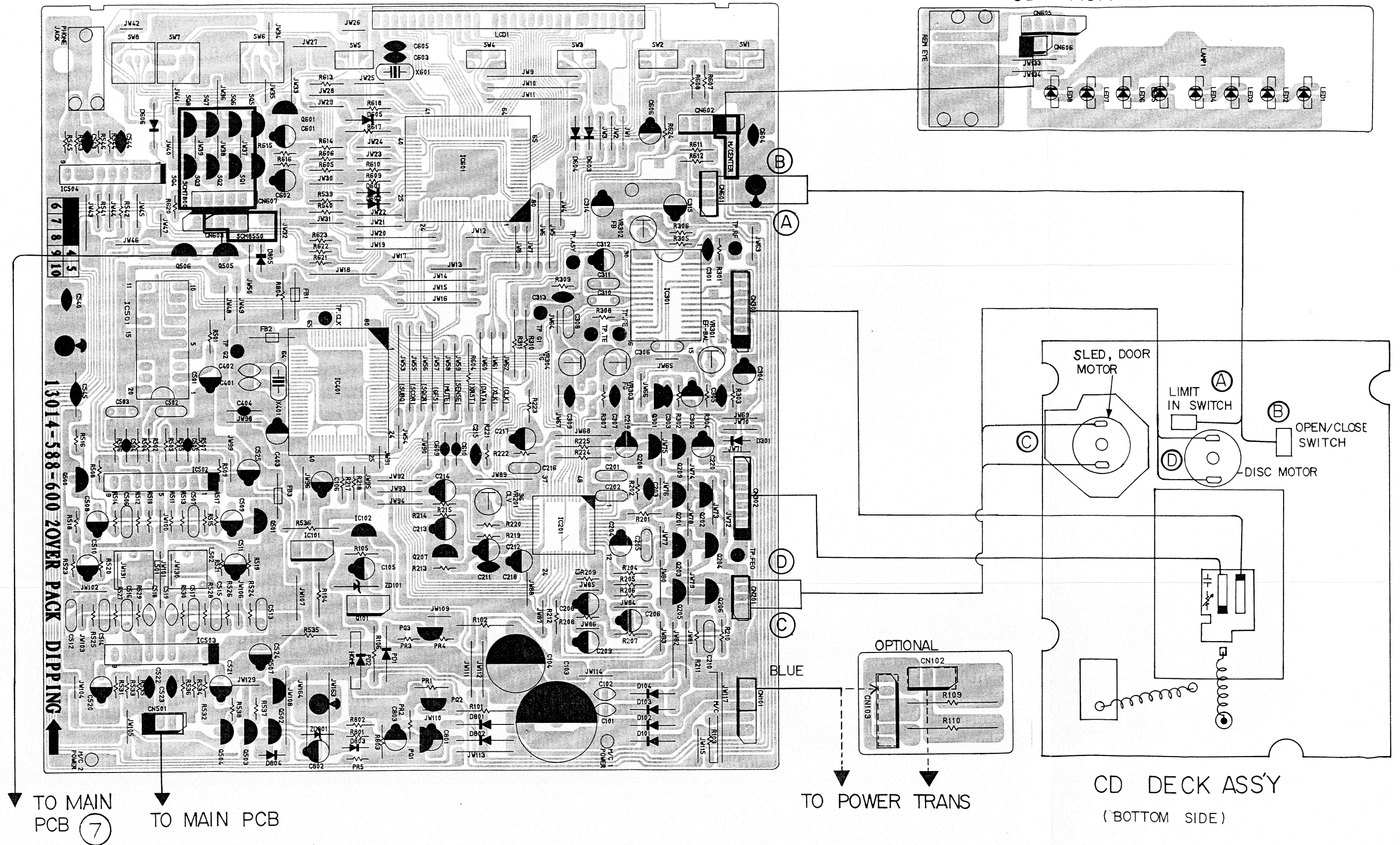


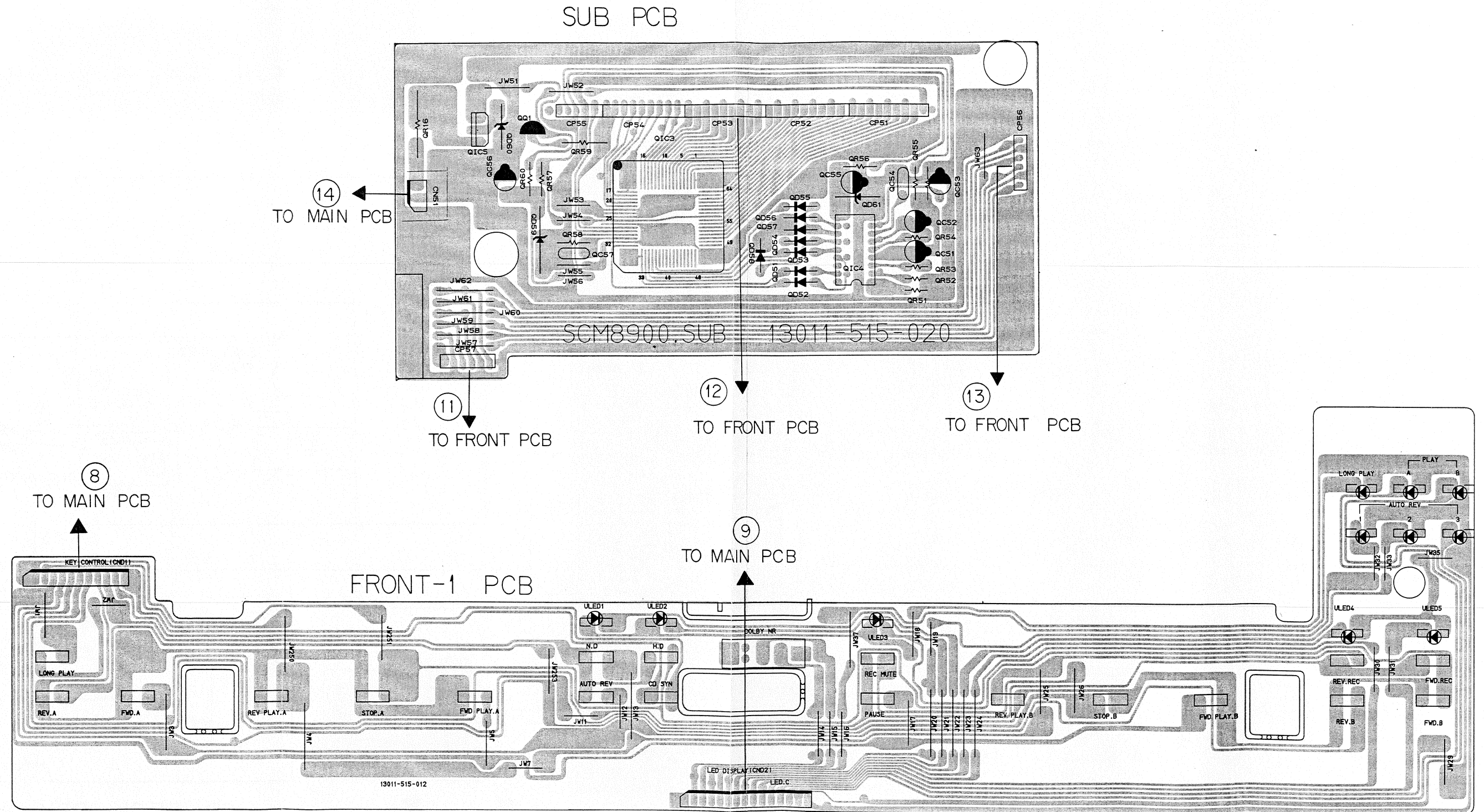
(Pictures taken in 10 : 1 probe)

3. CD SECTION

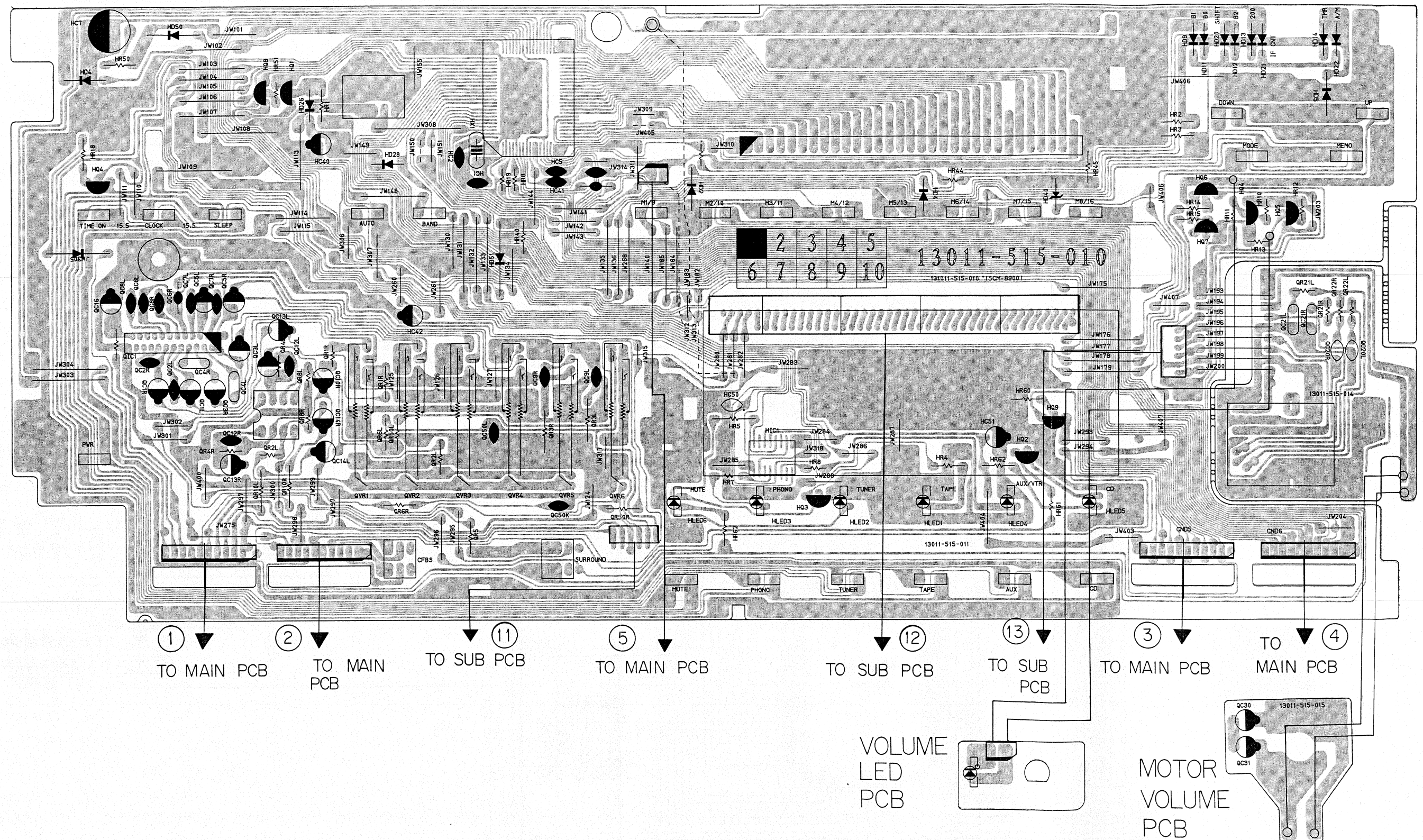
CD MAIN PCB

CD FRONT PCB



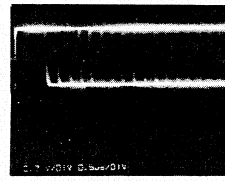


1) FRONT

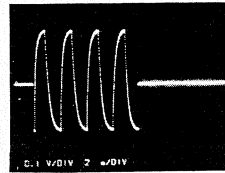


3. CD SECTION

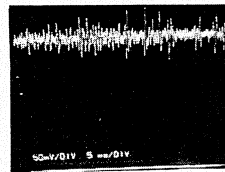
① EFM



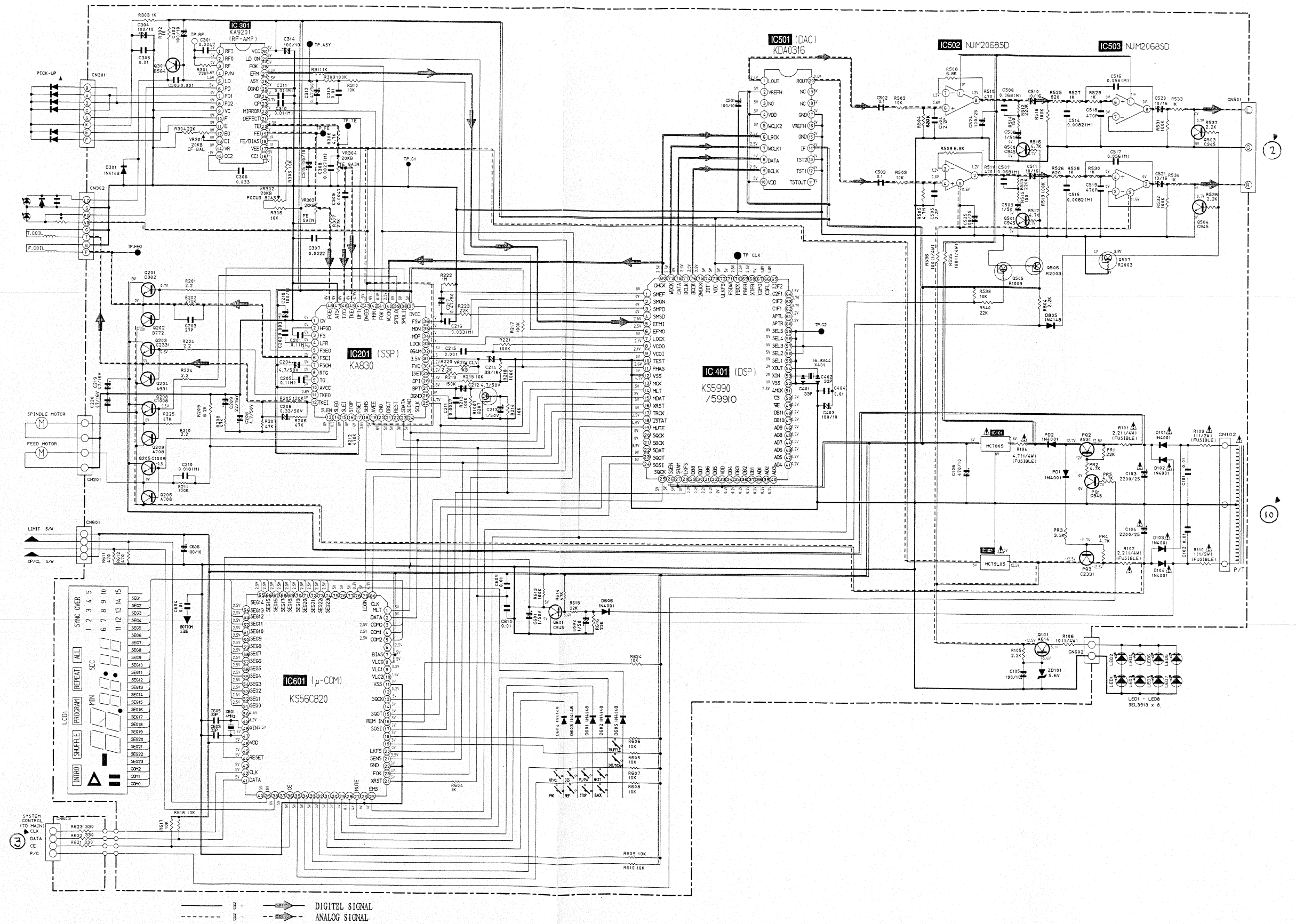
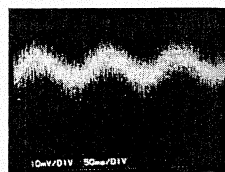
② FEO (no disc)

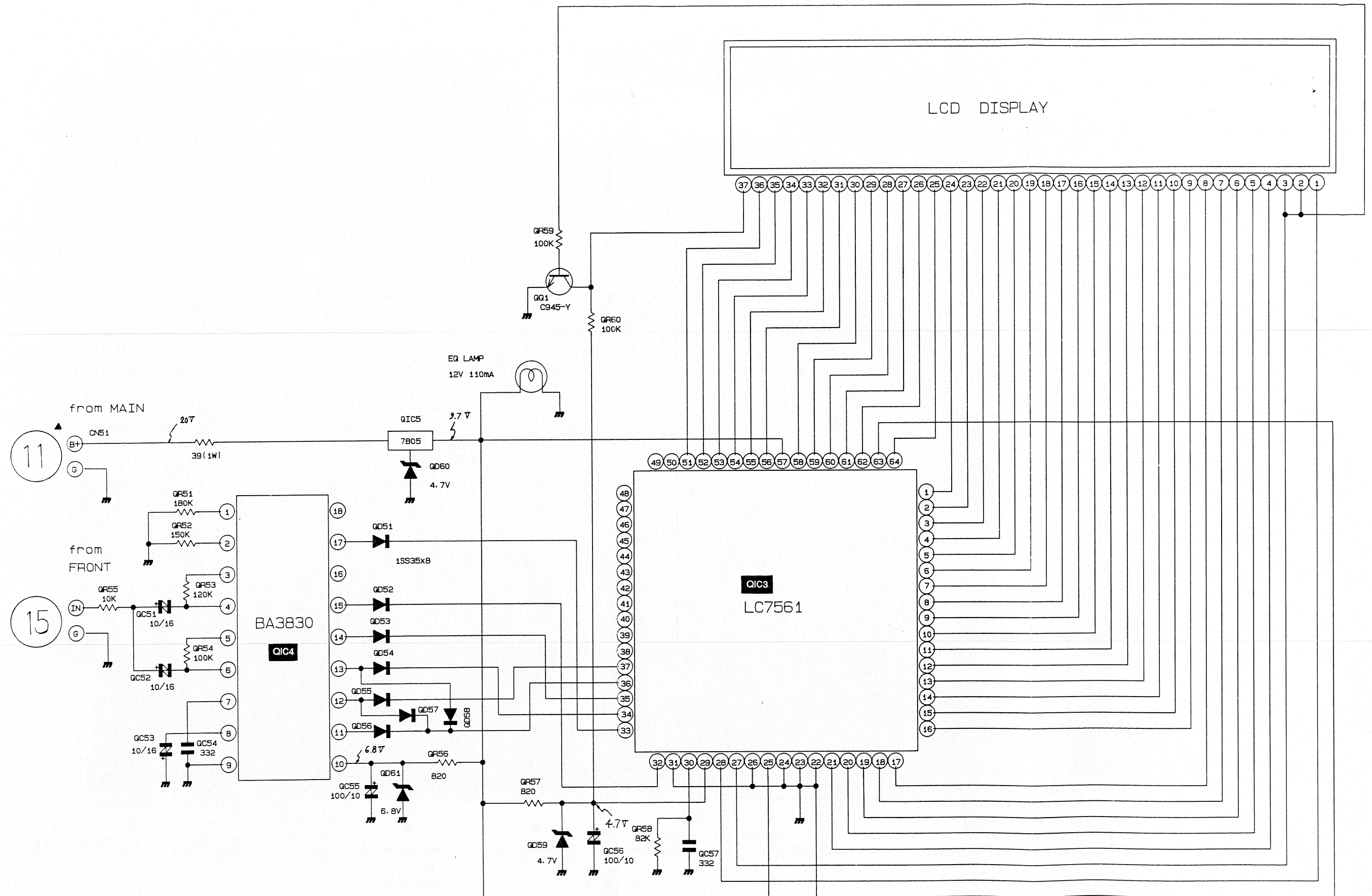


③ FEO (play)



④ TEO





1. MAIN SECTION

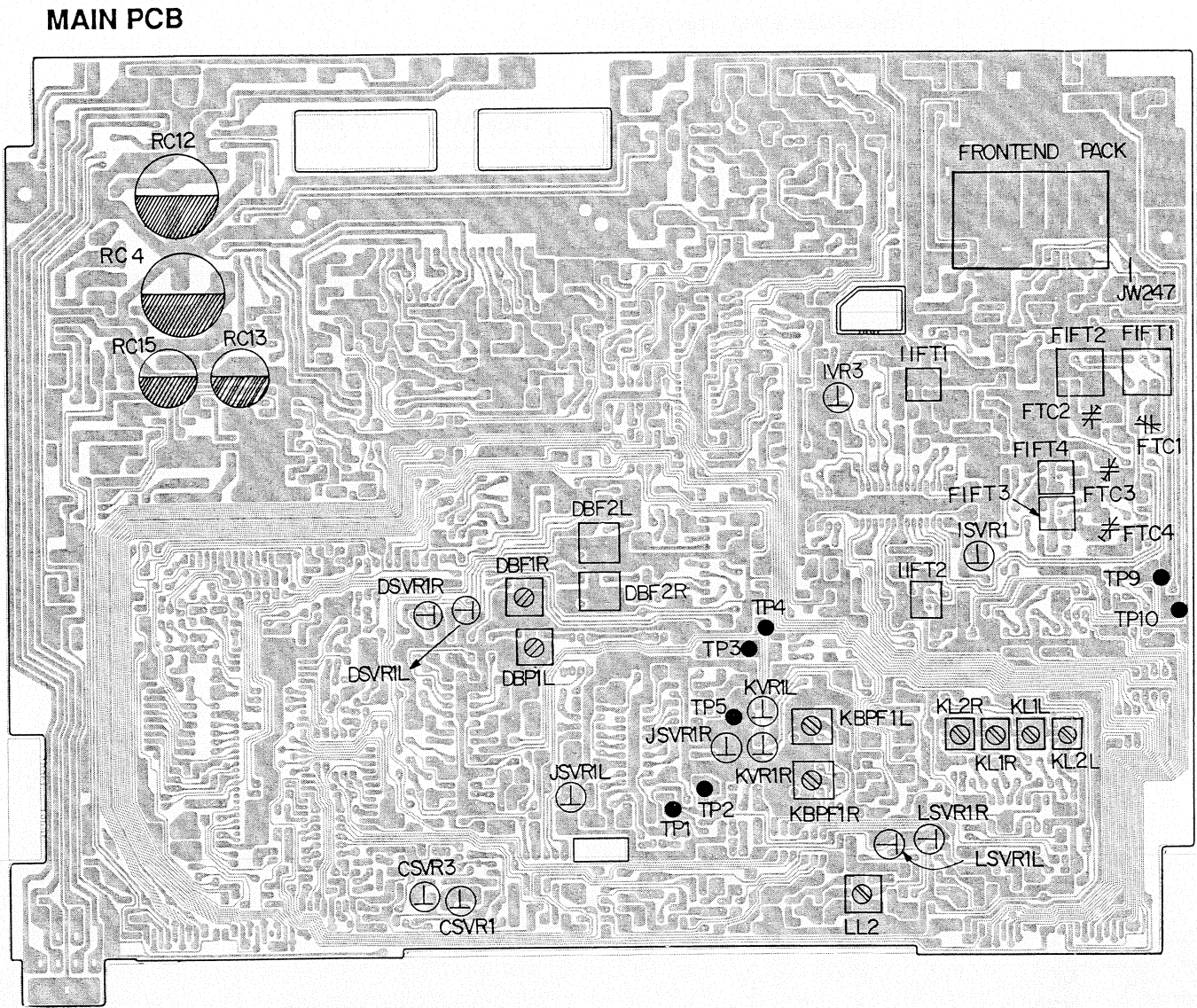


2. TAPE

1) MEASURING INSTRUMENTS REQUIRED

- (1) Oscilloscope
- (2) VTVM
- (3) TAPE
 - ① MTT-111 (or equivalent) : 3KHz signal is recorded → tape speed
 - ② MTT-5521 (or equivalent)
 - ③ MTT-114NA (or equivalent) : 12.5KHz signal is recorded.→ Azimuth
 - ④ MTT-150 (or equivalent) : 200mwb/m is recorded by DOLBY level.

2) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)



3) ADJUSTMENT PROCEDURE

(1) TAPE SPEED

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	Normal speed adjustment	FIG. 1	Insert MTT-111 to DECK B. Press PLAY button.	CSVR3	3KHz
2	High speed adjustment	FIG. 1	Insert MTT-111 to DECK B. Connect CN24. Press PLAY button.	CSVR1	6KHz Disconnect CN24.

(2) PLAY LEVEL

- * Set DOLBY NR switch to off.
- ① DECK A

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	AZIMUTH	FIG. 2	Play MTT-114NA in the DECK A.	FIG. 3	Maximum output and same phase of L, R-CH. Fix the screw.

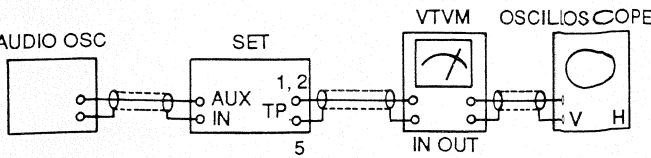
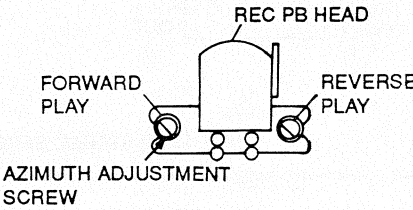
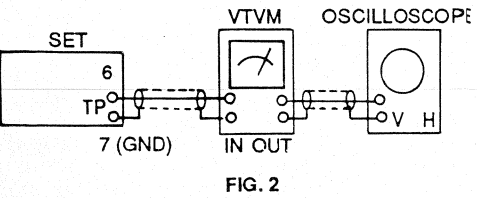
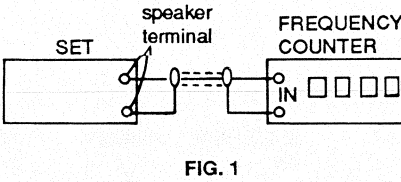
② DECK B

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	AZIMUTH	FIG. 2	Play MTT-114NA in the DECK B.	FIG. 3	Maximum output and same phase of L, R-CH. Fix the screw.
2	Playback output level	FIG. 2	Play MTT-150 in the DECK B	JSVR1L, R	245mV

(3) RECORD AND PLAYBACK ADJUSTMENT

- * Set DOLBY NR switch to off.

STEP	ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
1	Bias oscillation frequency	FIG. 4 (TP1 : L-CH, TP2 : R-CH, TP5 : GND)	Record MTT-5521 in the DECK B	LL2	105KHz
2	Bias current	FIG. 4 (TP1 : L-CH, TP2 : R-CH, TP5 : GND)	Record MTT-5521 in the DECK B	LSR2L, R	50mV
3	Record source level	FIG. 4 (TP1 : L-CH, TP2 : R-CH, TP5 : GND)	Record MTT-5521 in the DECK B	DSR2L, R	245mV
4	Signal current	FIG. 4 (TP1 : L-CH, TP2 : R-CH, TP5 : GND)	Connect CN20. Record MTT-5521 in the DECK B.	KVR1L, R	6.2mV Disconnect CN2).



4) ADJUSTMENT PROCEDURE

(1) FM ADJUSTMENT

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	IF center & T.H.D	FIG. 1	98MHz	98MHz	IIFT1	Distortion (DT) minimum
2	FM coverage	Connect DC to JW247 and GND	—	87.5MHz	FM OSC	3V
3	Auto selection level	FIG. 2	98MHz	98MHz	ISVR1	0V
4	FM stereo seperation	FIG. 3	98MHz	98MHz	IVR3	If L-CH is input, R-CH should be minimum and visa-versa.

* High coverage and tracking adjustment are not required.

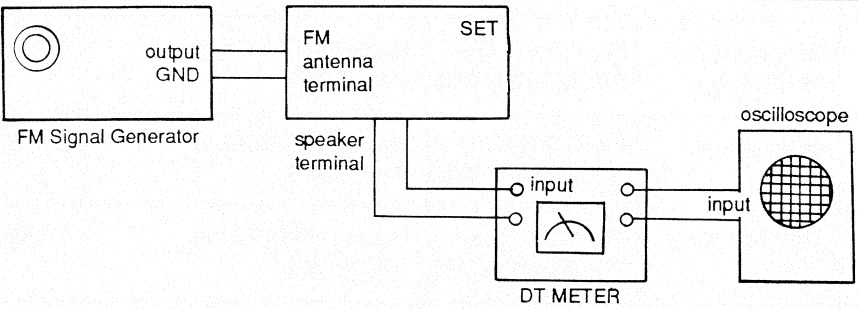


FIG.1) IF CENTER AND T.H.D

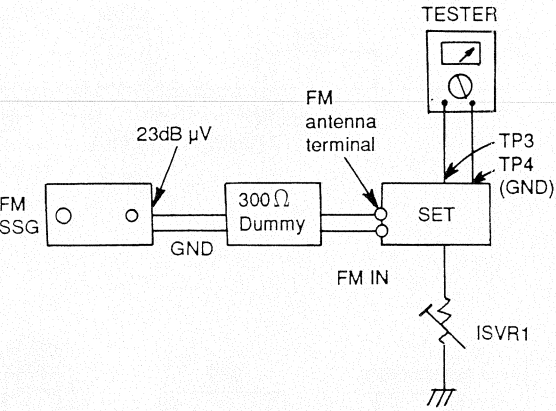


FIG. 2) AM AUTO SEARCH LEVEL

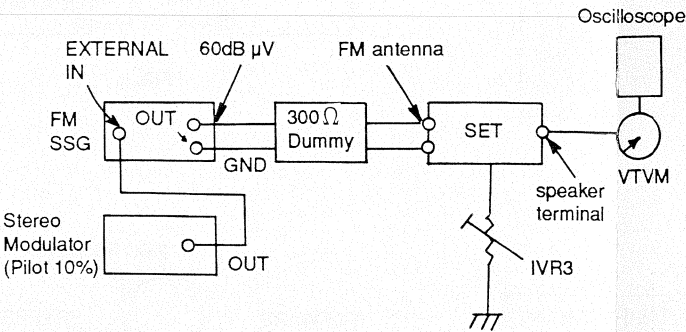


FIG. 3) FM STEREO SEPERATION

* FIG. 2, 3 : 300 dummy-optional

(2) AM ADJUSTMENT
① 2 BAND (FM/AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQUENCY SETTING	ADJUSTMENT FREQUENCY	RESULT & REMARK
1	Intermediate frequency (IF) adjustment	FIG. 4	KHz	522KHz	IIFT2	Maximum output
2	AM frequency coverage adjustment	Connect DC voltmeter to TP9 and GND	—	522KHz	FIFT3	0.9V
3			—	1611KHz	FTC4	9V
4	Repeat step 2 and 3 several times.					
5	AM tracking adjustment	FIG. 4	594KHz	594KHz	FIFT1	Maximum output
6			1404KHz	1404KHz	FTC1	
7	Repeat step 5 and 6 several times.					

② 3 BAND (FM/MW/LW)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQUENCY SETTING	ADJUSTMENT FREQUENCY	RESULT & REMARK
1	LW frequency coverage adjustment	FIG. 4	—	146KHz	FIFT .	0.9V
2			—	290KHz	FTC3	5V
3	Repeat step 1 and 2 several times.					
4	LW tracking adjustment	FIG. 4	160KHz	160KHz	FIFT2	Maximum output
5			270KHz	270KHz	FTC2	
6	Repeat step 4 and 5 several times.					

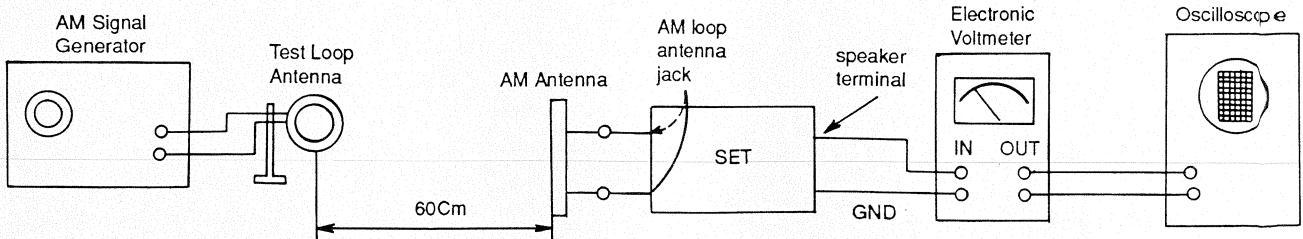
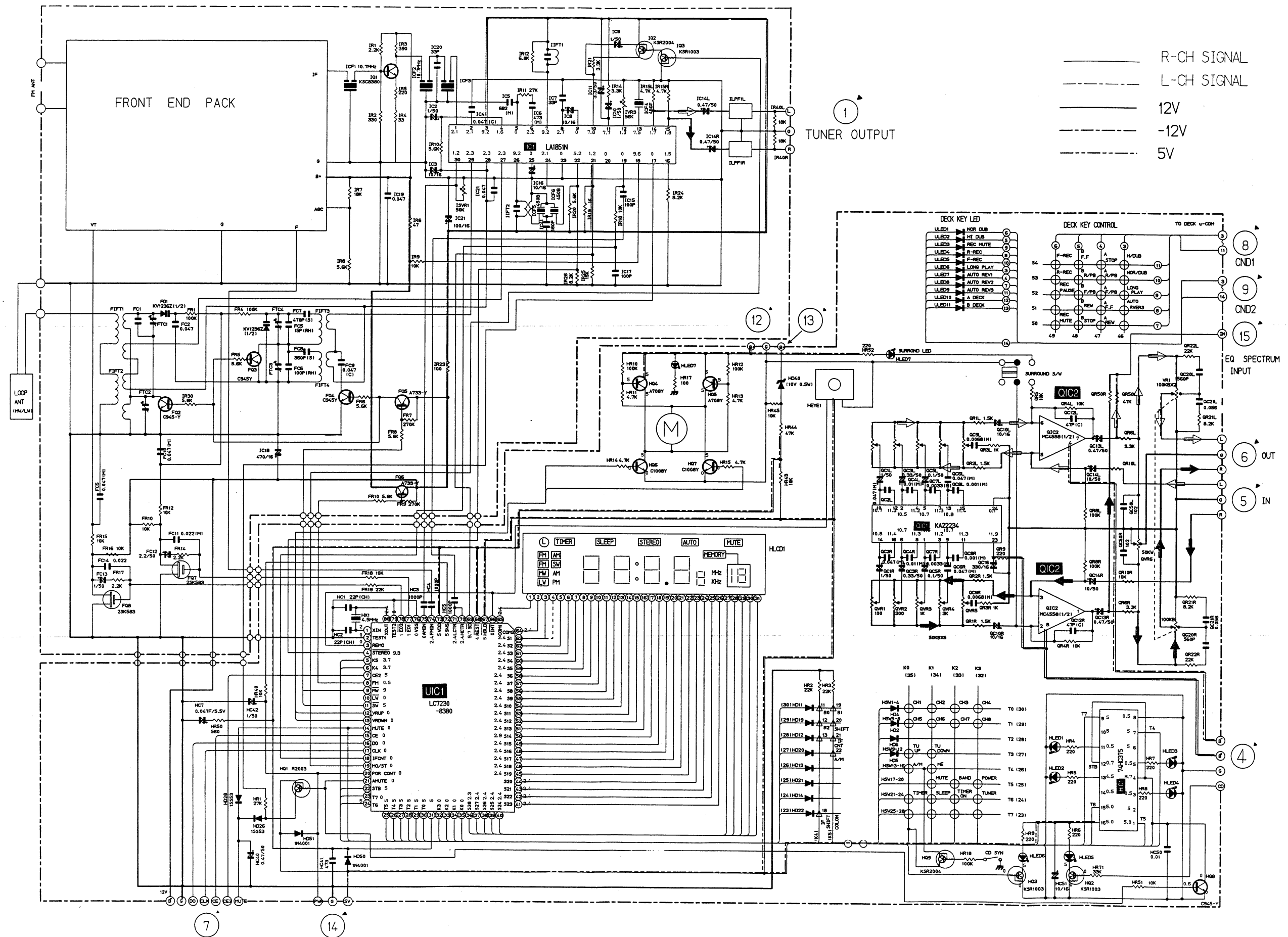


FIG. 4) AM LW TRACKING, AM IF

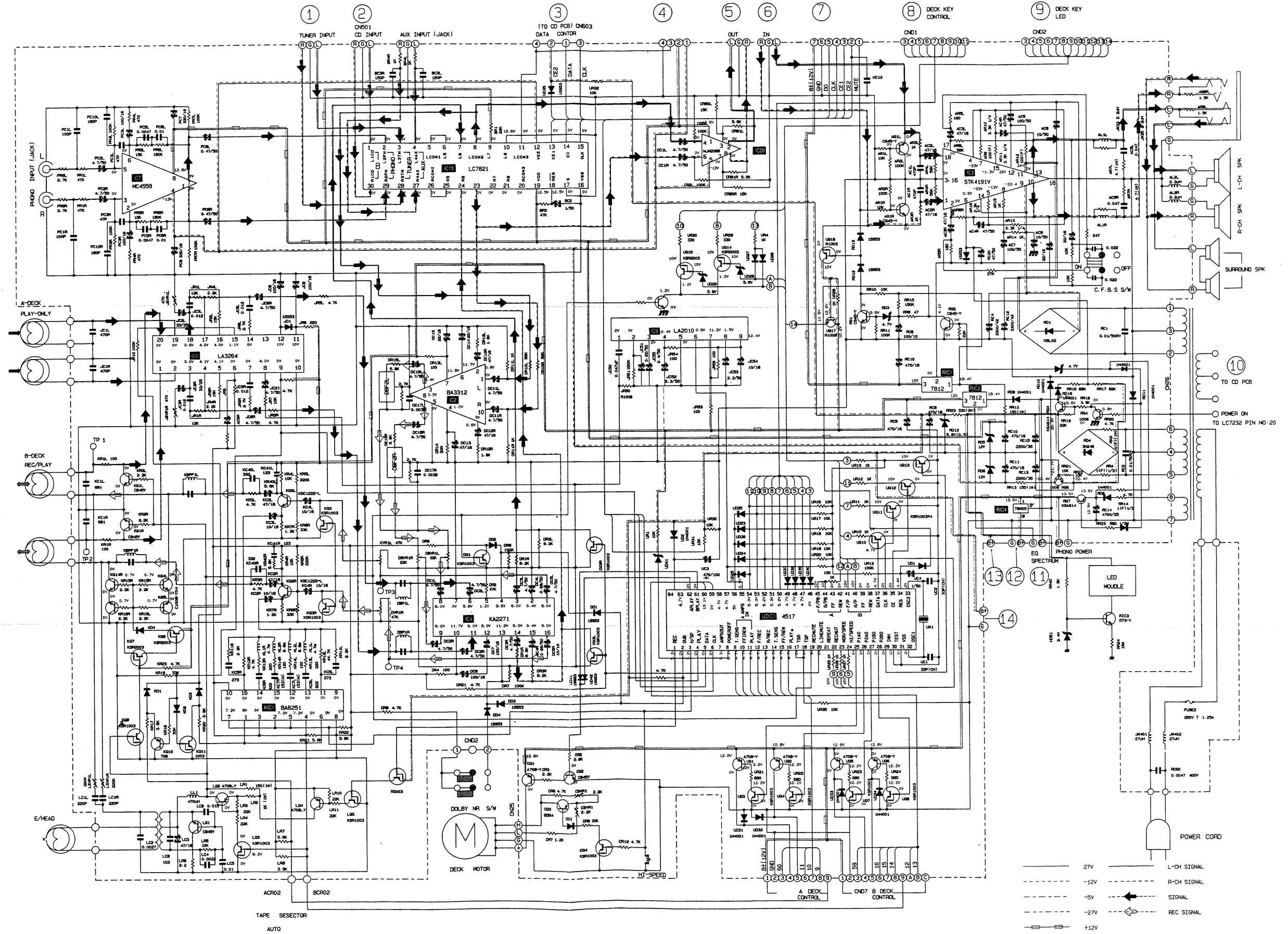
1) FRONT



SCHEMATIC DIAGRAM

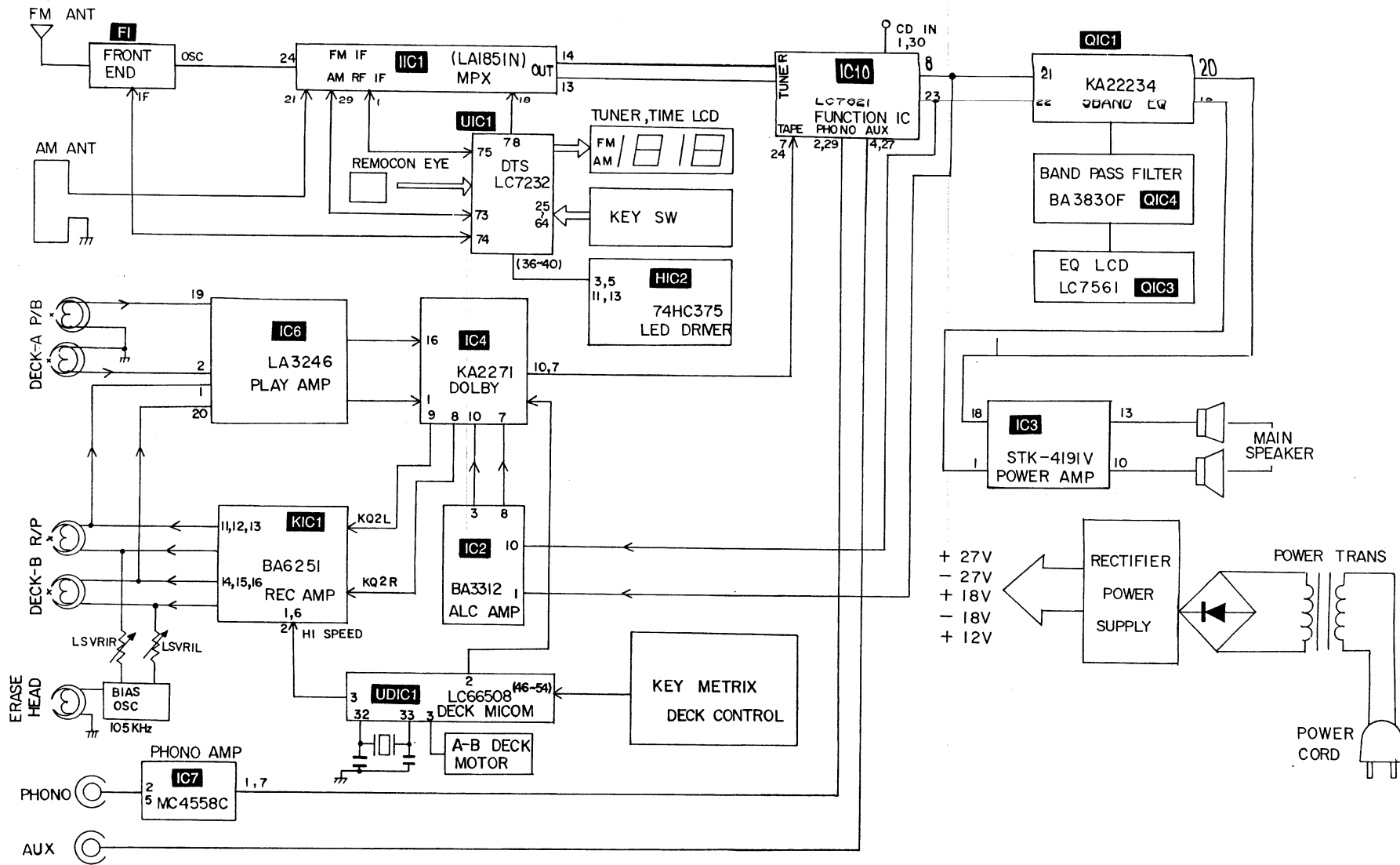
1. MAIN SECTION

1. The unit of all resistors is Ω unless otherwise stated. (K : K Ω , M : M Ω). All resistors are 1/4W or 1/8W unless otherwise stated.
2. The unit of all capacitors is μF unless otherwise stated. (P : PF).
3. The schematic diagram is subject to change upon improvement without prior notice.

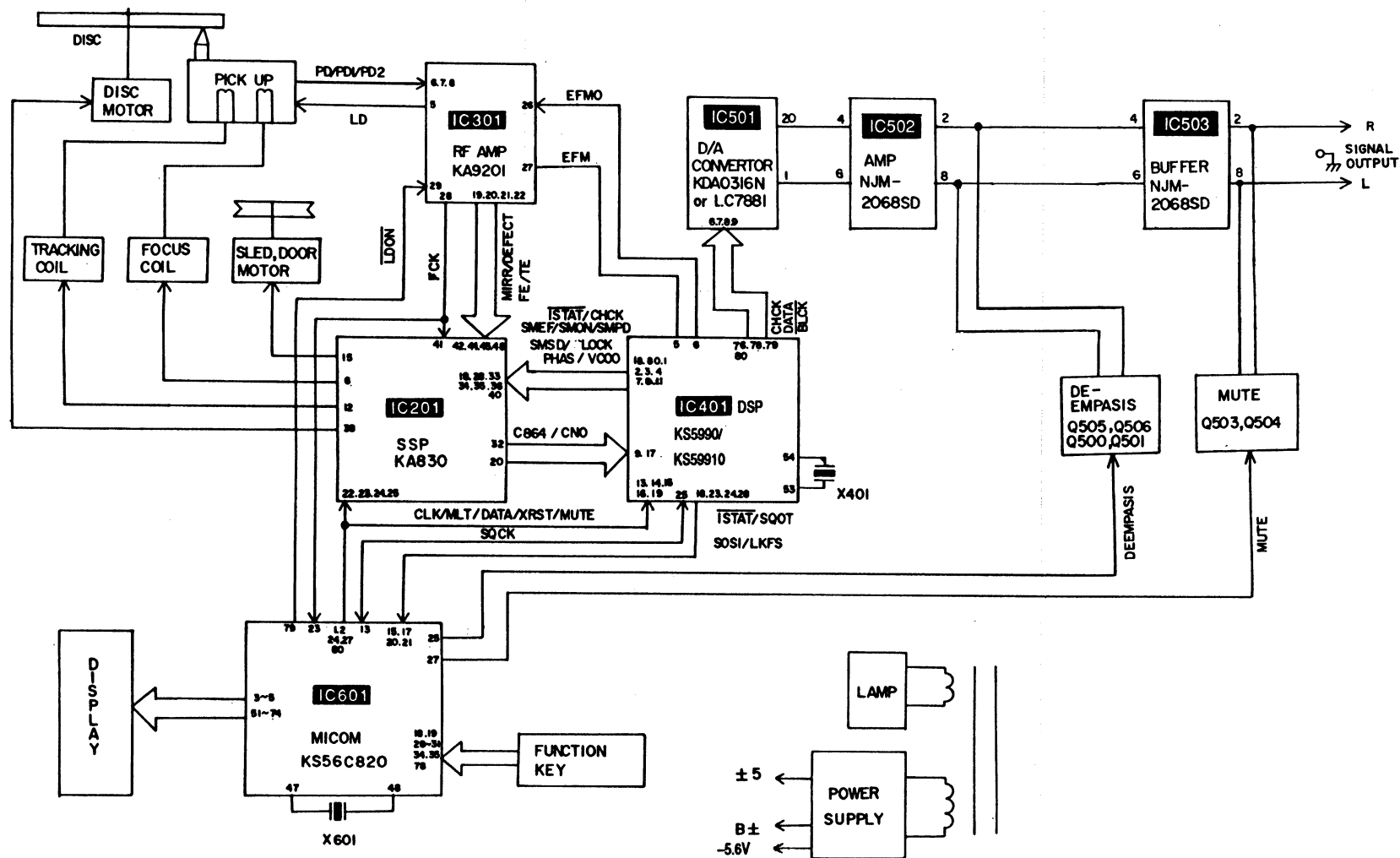


■ BLOCK DIAGRAM

1. MAIN SECTION



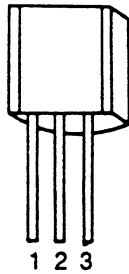
25



2. CD

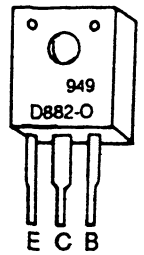
• TR

1)

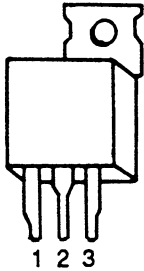


TR	1	2	3
KSA931, KSC2331, KSR2003 KSR1003, KSR1007	E	C	B
KSA708, KSB564, KSC945 KSC1008	E	B	C
MC79L05	G	IN	OUT

2) KSD882, KSB772

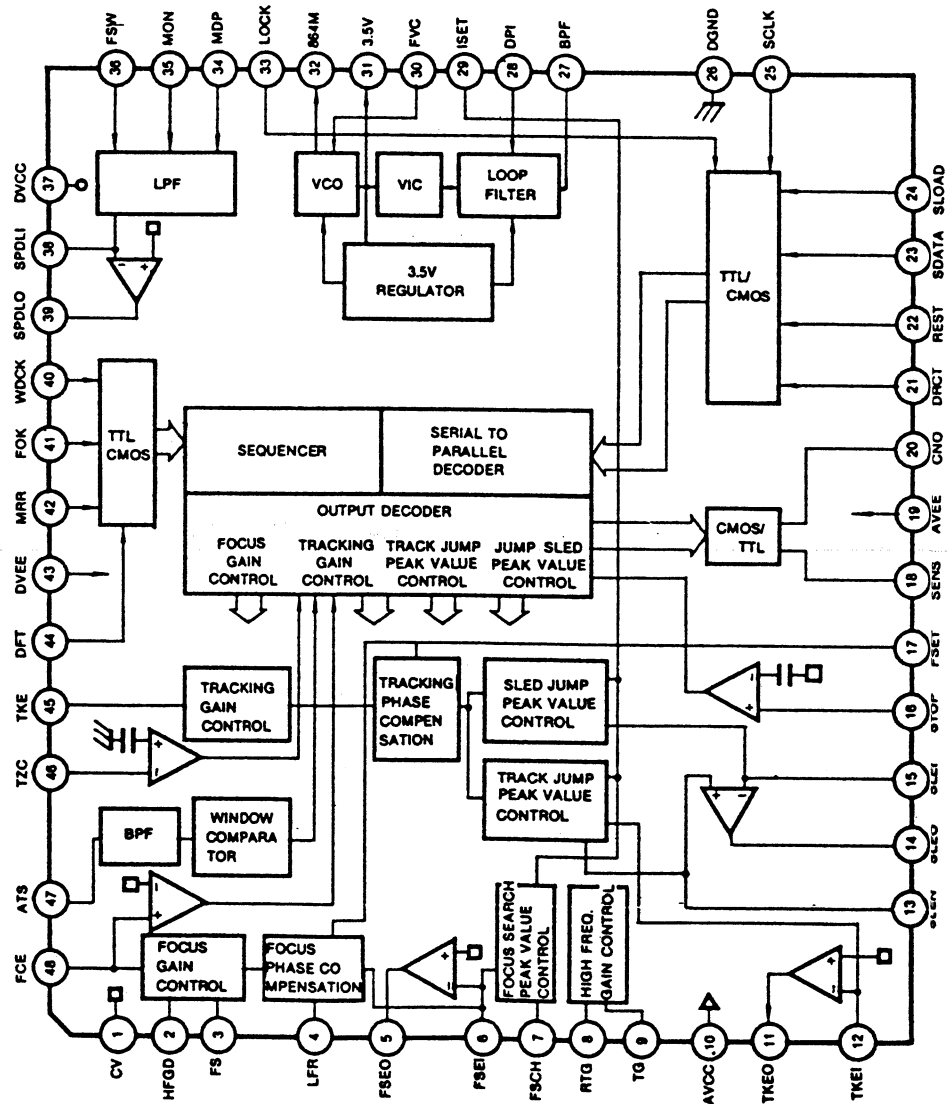


3)



TR	1	2	3
MC78M05	IN	GND	OUT
KSA614	B	C	E

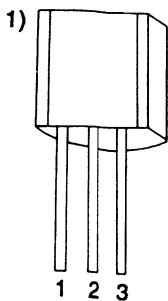
• KA830 (IC-SS PROCESSOR) : IC201



IC & TR INTERNAL DIAGRAM

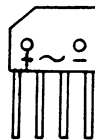
1. MAIN

- TR & DIODE

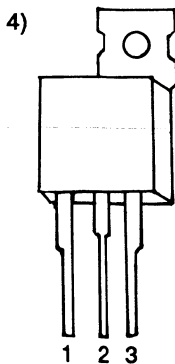
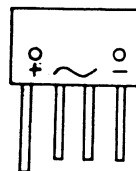


TR	1	2	3
KSR2003, KSR1003, KSR1007 KSR1009, KSR2007, KSC2331 KSR2004	E	C	B
KSC945, KSC1008, KSB564 KSA733, KSC838, KSA708 KSC1222	E	B	C

2) 3N246
(DIODE BRIDGE)
: RD4

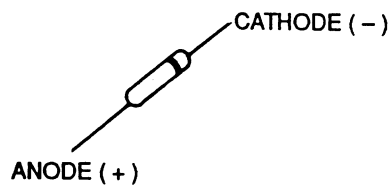


3) PBL403
(DIODE BRIDGE)
: RD1

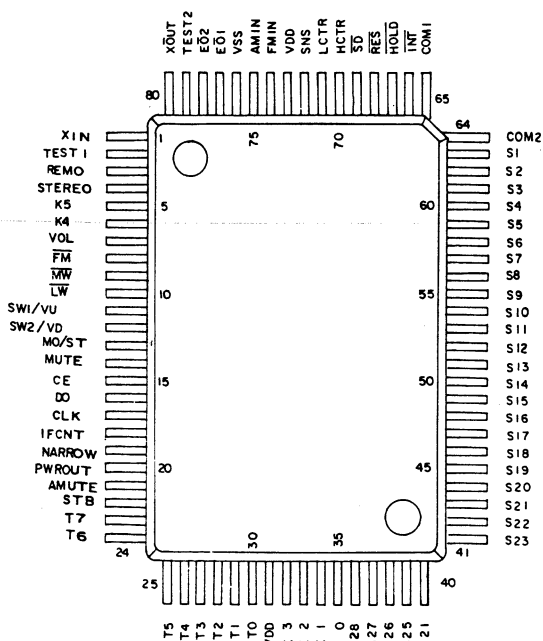


TR	1	2	3
MC78M05 MC7812C	IN	GND	OUT
KSD73-Y	B	C	E

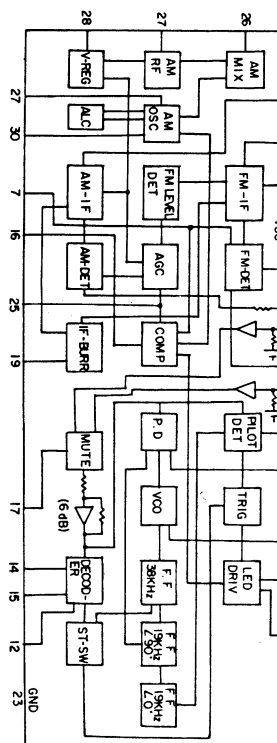
5) IN4148M, IN4001, 1SS53, ZENER DIODE



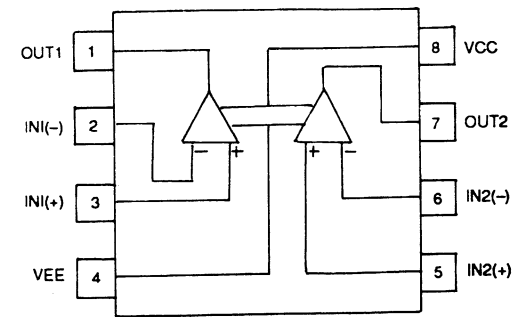
- LC7232-8380 (IC-DTS PLL) : UIC1



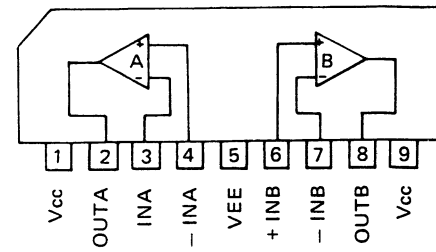
- LA1851N (FM, AM, IF IC) : IIC1



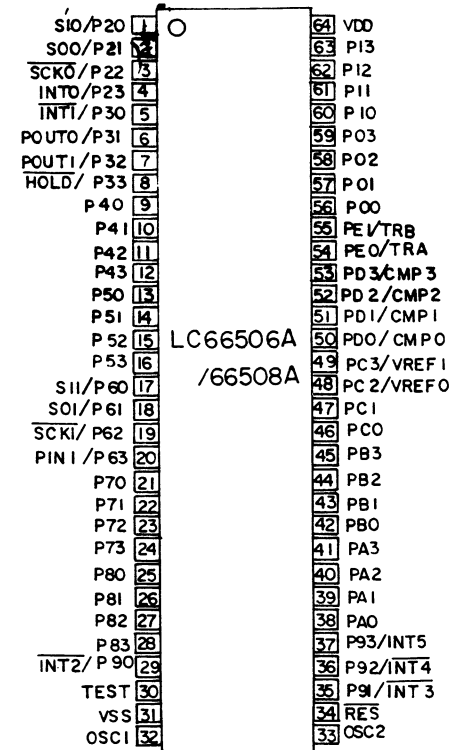
● MC4558C (OP AMP) : IC7, QIC2



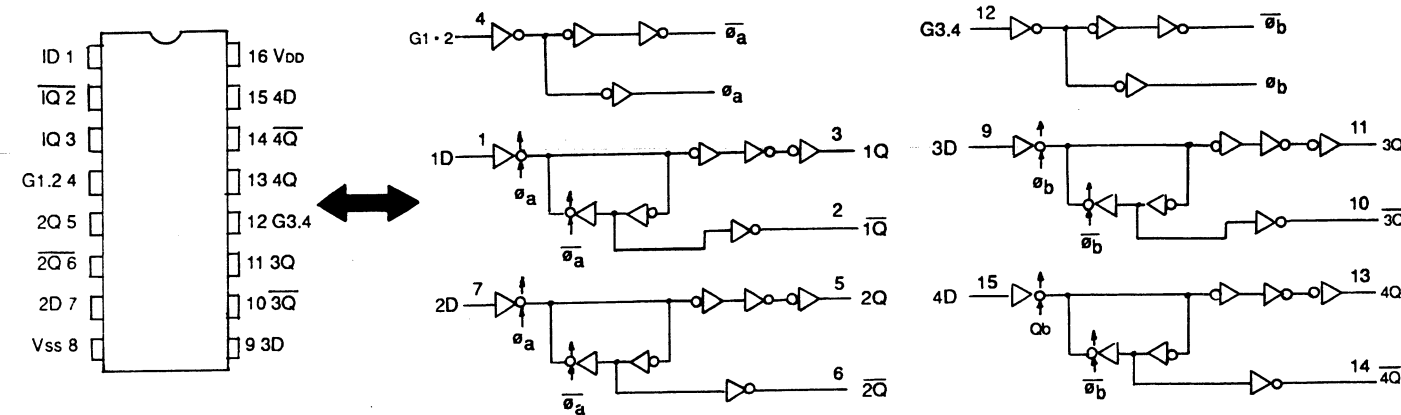
● NJM2068SD (OP AMP) : IC20



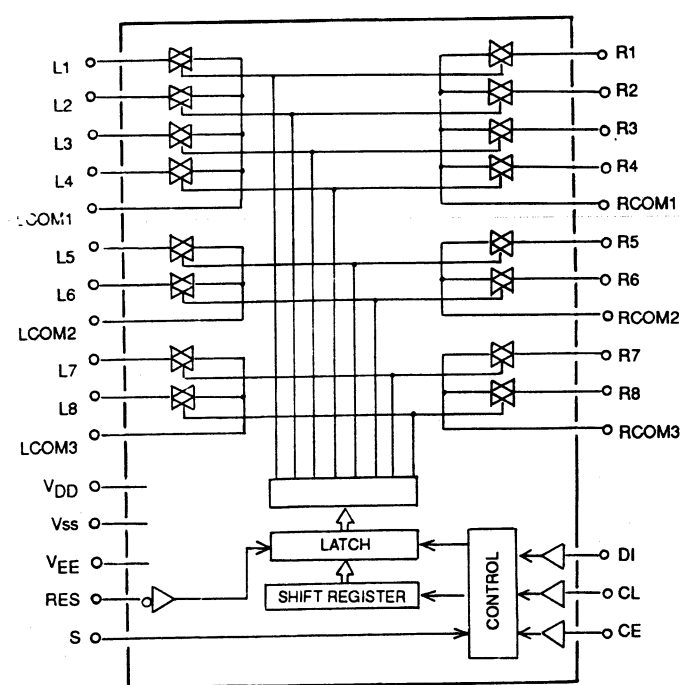
● LC66508-4517 (IC-μ COM) : UDIC1



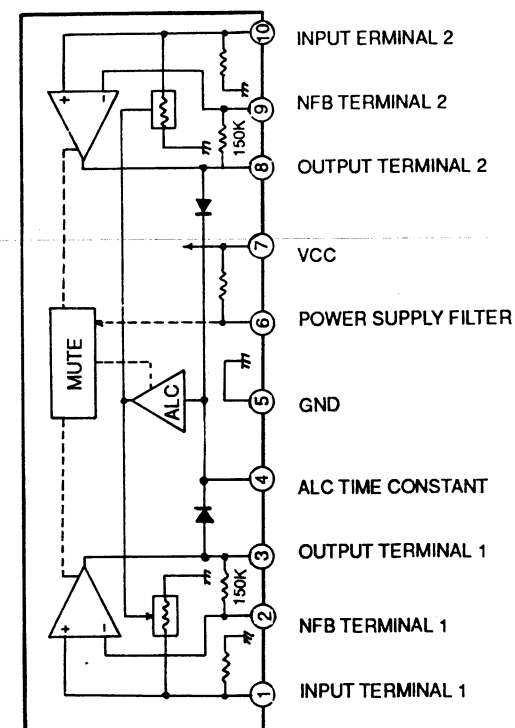
● LC74HC375/TC74HC375AF (IC-HCT) : HIC1



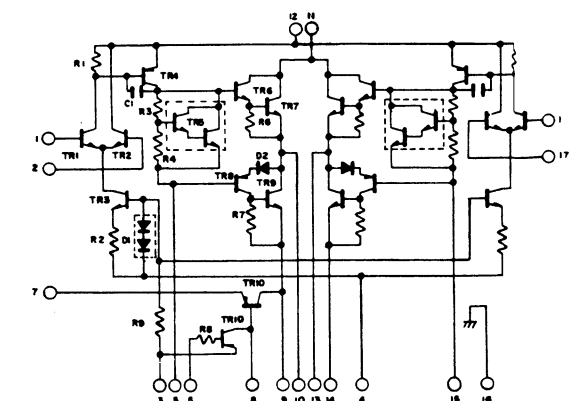
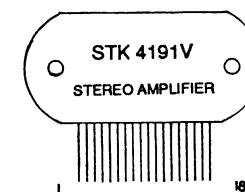
● LC7821 (IC-FUNCTION) : IC10



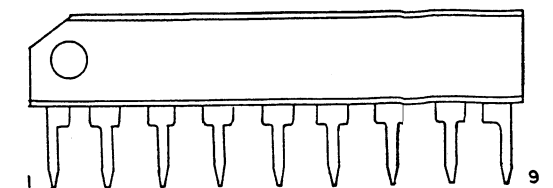
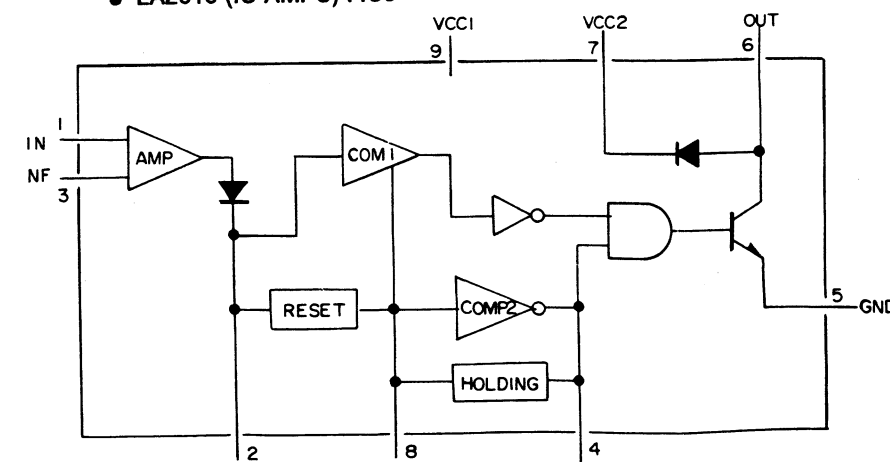
● BA3312N (IC-EQ) : IC2



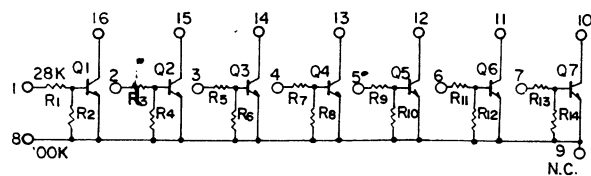
● STK4191 (IC-POWER) : IC3



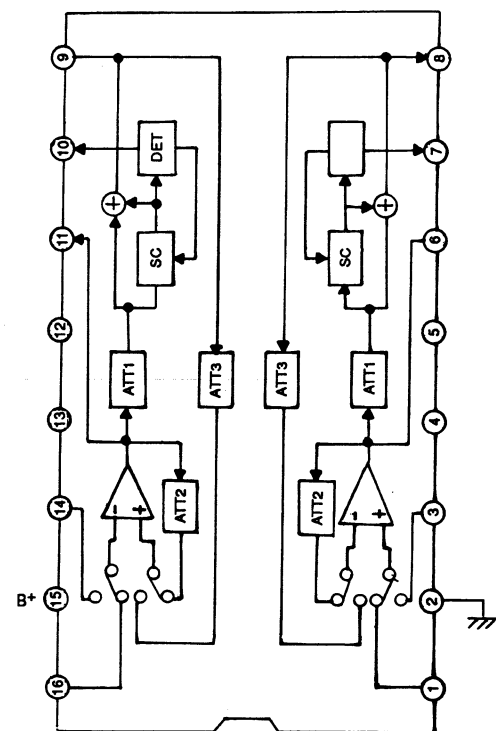
● LA2010 (IC-AMPS) : IC9



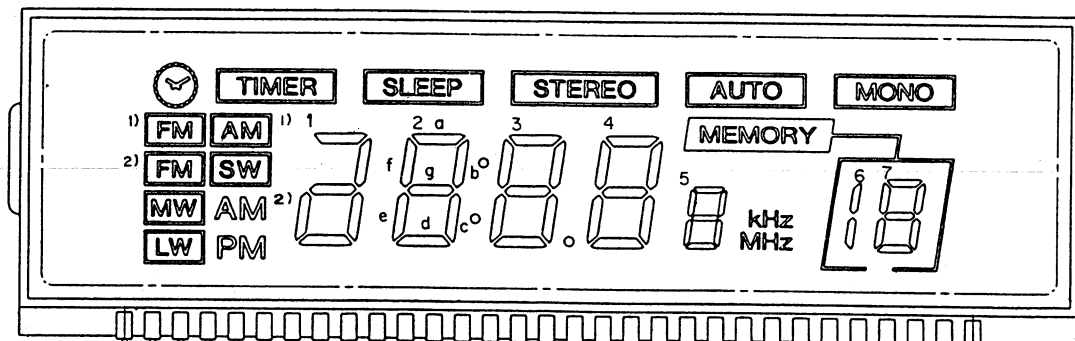
● BA6251 (IC-TR ARRY) : KIC1



● KA2271 (DOLBY IC) : IC4

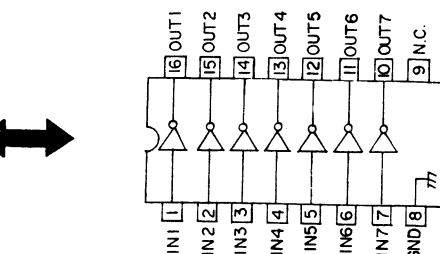


● 8190JP (LCD1) : HLCD1

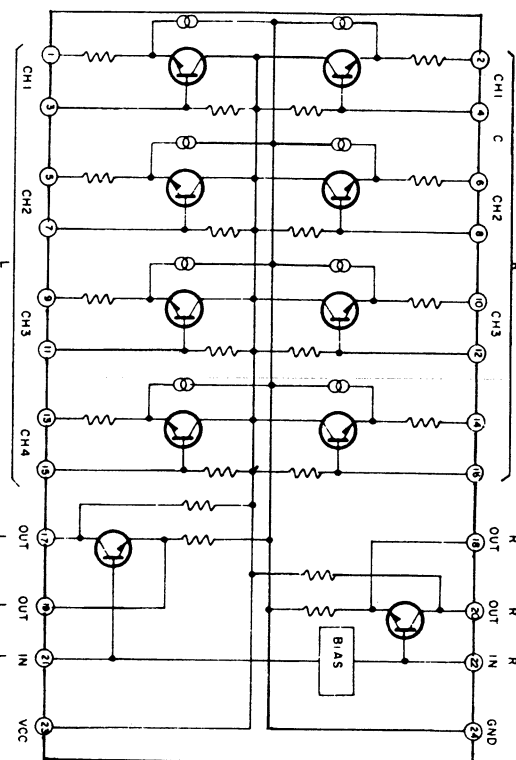


NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM1	COM	—	AM 1)	MW	SW	STEREO	PM	1b	1c	2f	2e	2d	2a	3f	3e	3d
COM2	—	COM	FM 1)	FM 2)	LW	AM 2)	—	1 adeg	COL	2b	2g	2c	—	3b	3g	3c

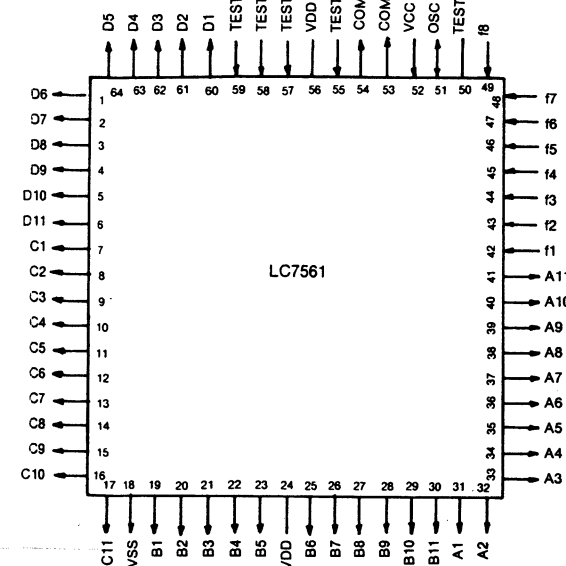
NO	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
COM1	3a	4f	4e	4d	4a	5g	5be	KHz	MEMORY	TIMER	7f	7e	7d	7a	MONO
COM2	—	4b	4g	4c	—	5 acdf	—	MHz DP	AUTO	K6	7b	7g	7c	SLEEP	—



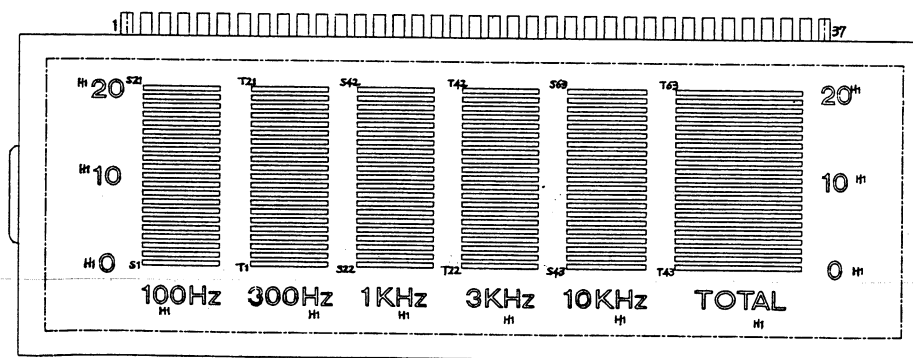
● KA22234 (IC-LINER) : QIC1



● LC7561A (LCD DRIVER) : QIC3

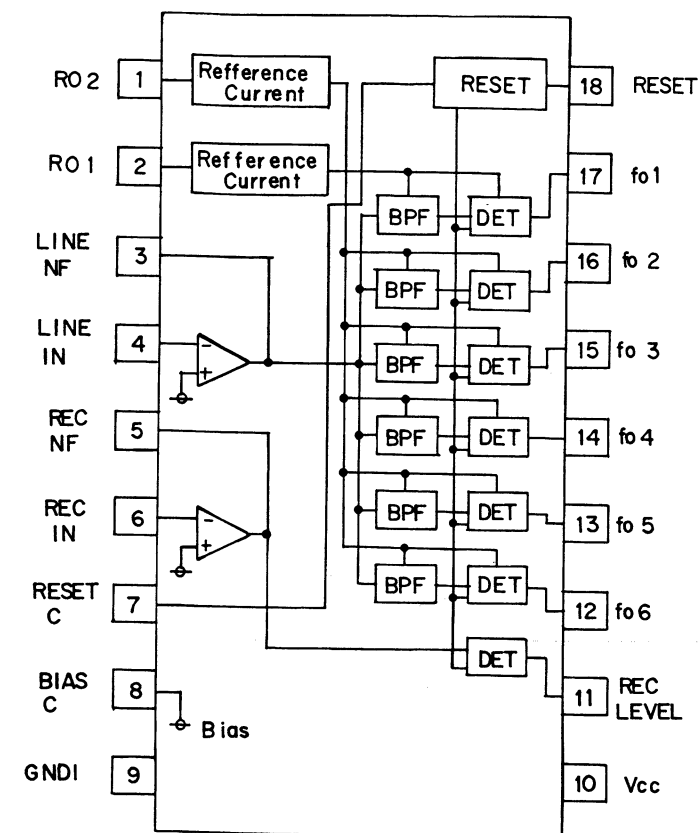


● LE-0008AP (EQ LCD)



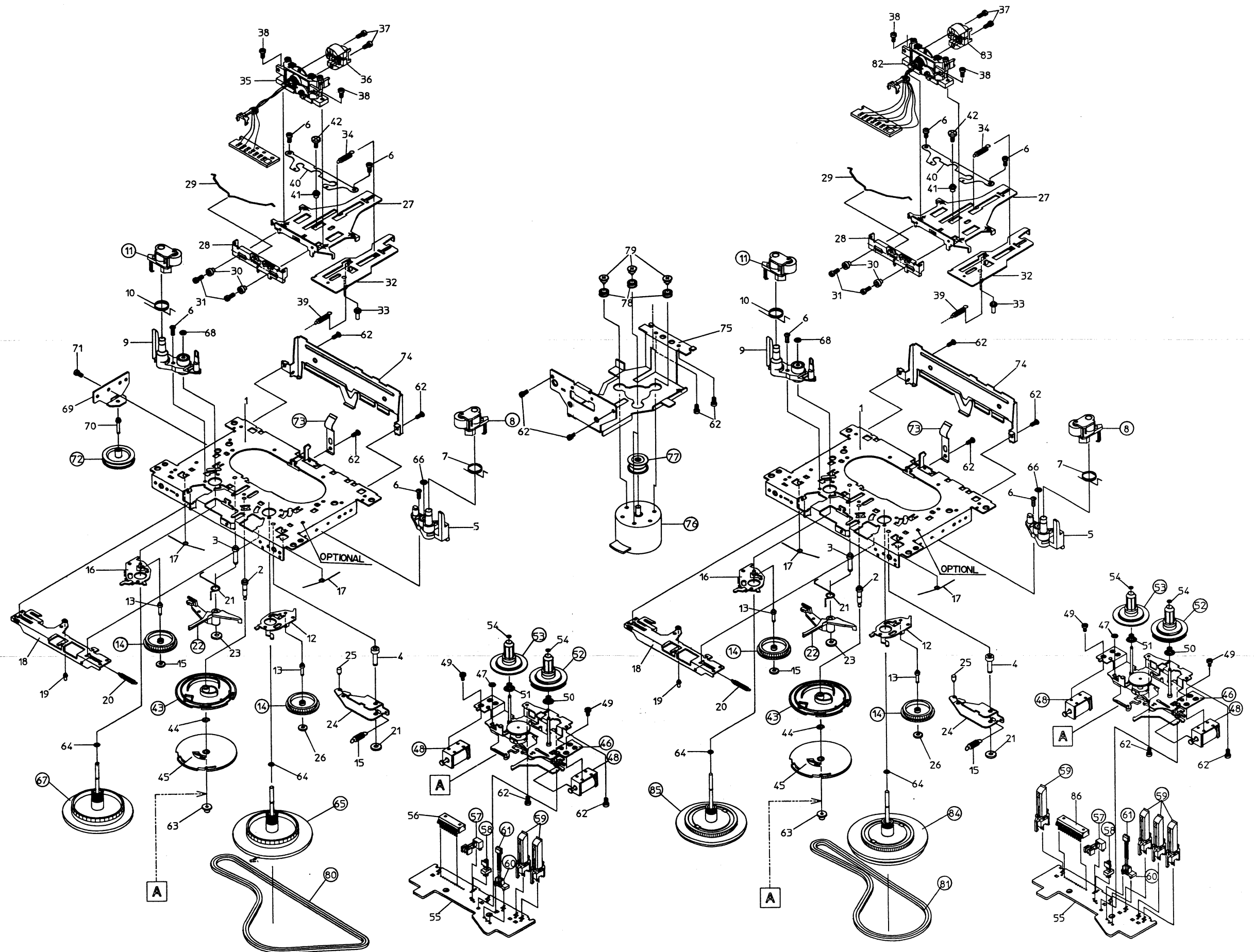
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
S 12	S 14	S 16	S 18	S 20	S22	S23	S 25	S 27	S 29	S 31	S 33	S 35	S 37	S 39	S 41	S 43	S 44	S 46	S 48	S 50	S 52	S 54	S 56	S 58	S 60	S 62	*
S 13	S 15	S 17	S 19	S 21		S24	S 26	S 28	S 30	S 32	S 34	S 36	S 38	S 40	S 42		S 44	S 47	S 49	S 51	S 53	S 55	S 57	S 59	S 61	S 63	
T 12	T 14	T 16	T 18	T 20	T22	T23	T 25	T 27	T 29	T 31	T 33	T 35	T 37	T 39	T 41	T 43	T 44	T 46	T 48	T 50	T 52	T 54	T 56	T 58	T 60	T 62	*
T 13	T 15	T 17	T 19	T 21		T24	T 26	T 28	T 30	T 32	T 34	T 36	T 38	T 40	T 42		T 45	T 47	T 49	T 51	T 53	T 55	T 57	T 59	T 61	T 63	
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	H1

● BA3830S (BAND PASS FILTER) : QIC4

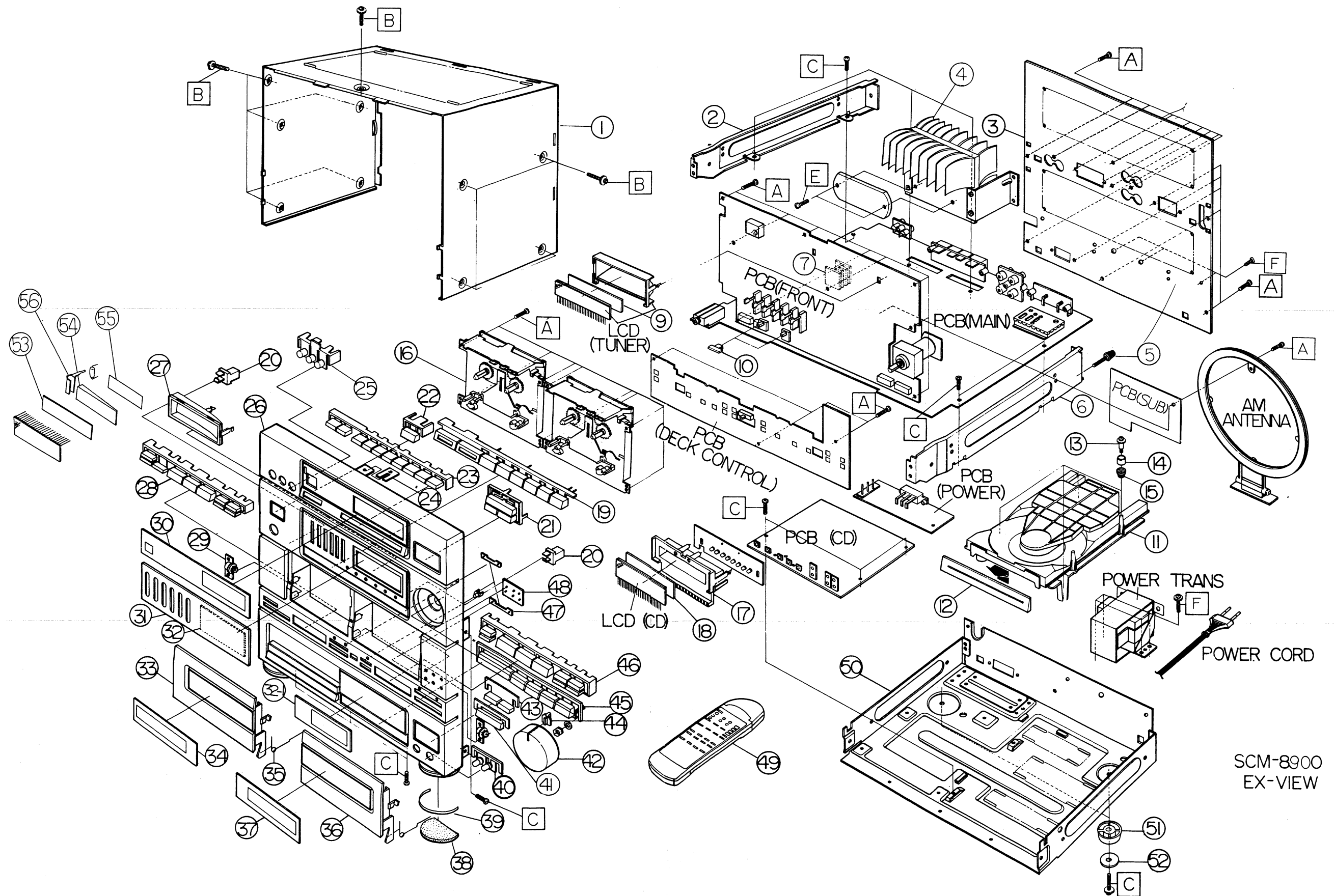


1	2	3	4	5	6	7	8	9
com1	*	*	S1	S 2	S 4	S 6	S 8	S 10
*	com2	*	T1	T 2	T 4	T 6	T 8	T 10
*	*	com3	*	*	*	*	*	*

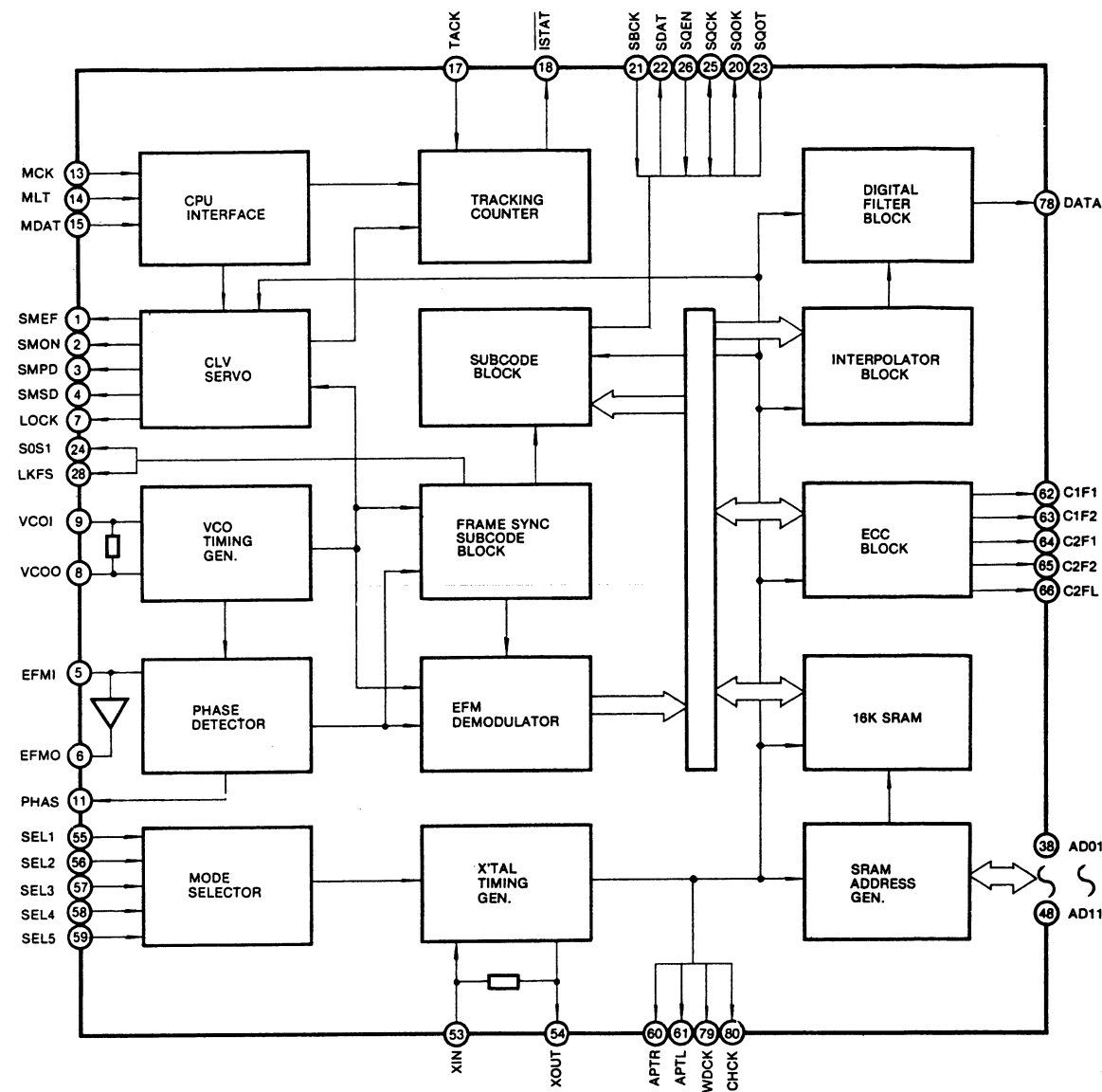
● EXPLODED VIEW (CASSETTE DECK)



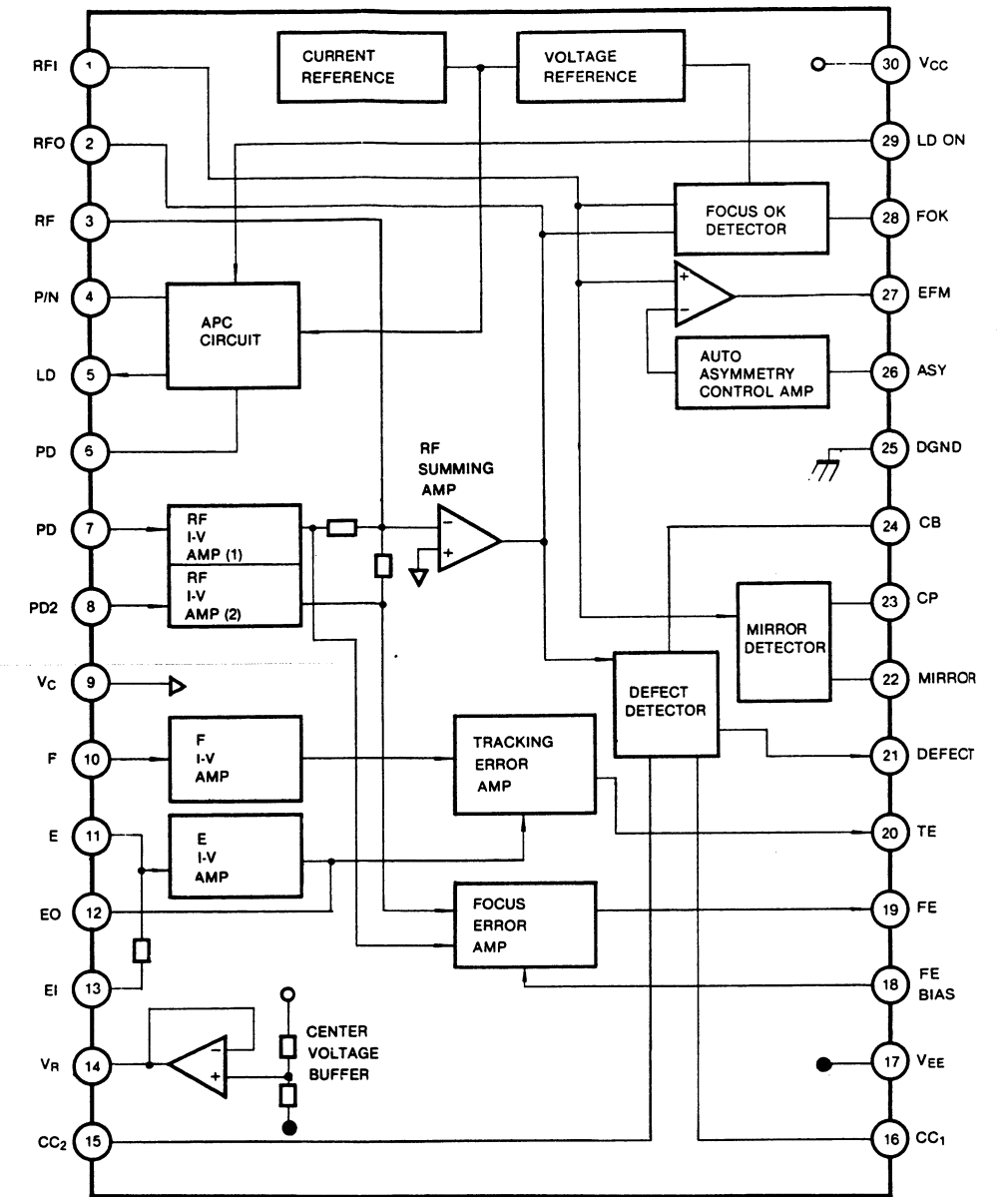
3. MAIN
● EXPLODED VIEW



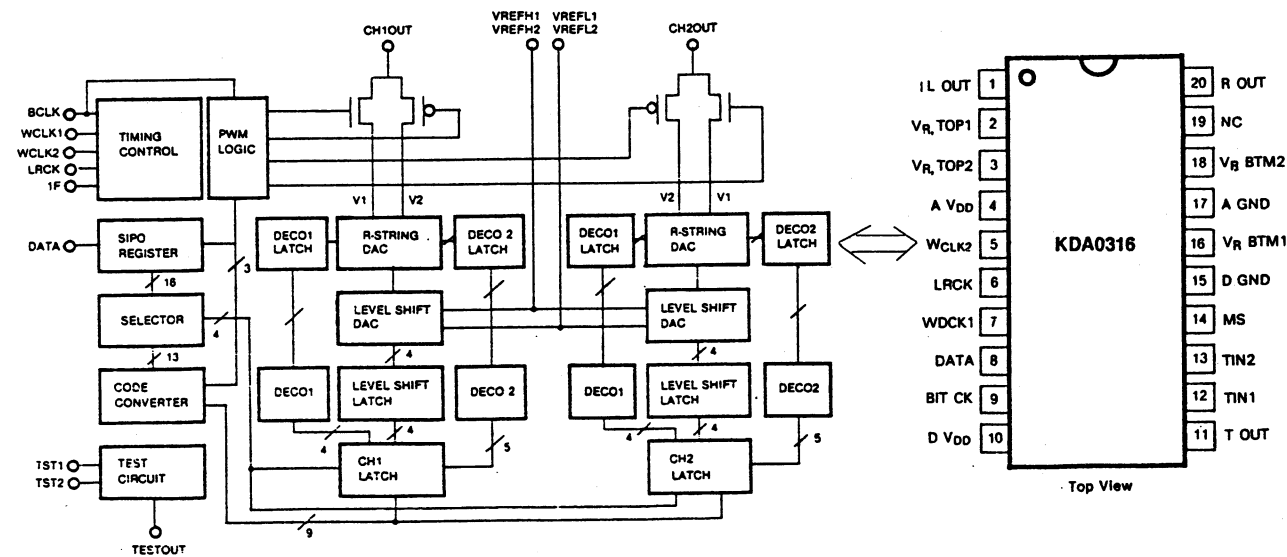
● KS5990/KS59910 (DIGITAL SIGNAL PROCESSOR) : IC401



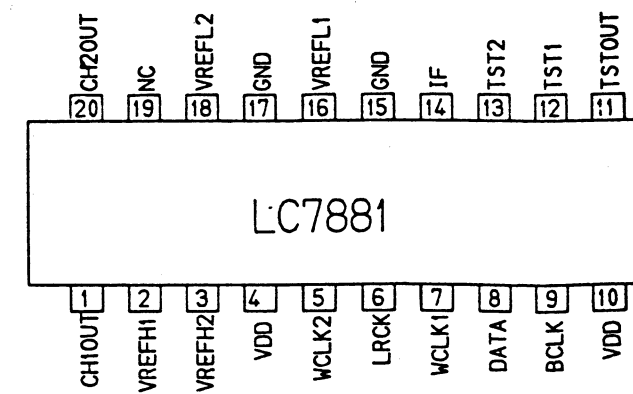
● KA9201 (RF AMP) : IC 301



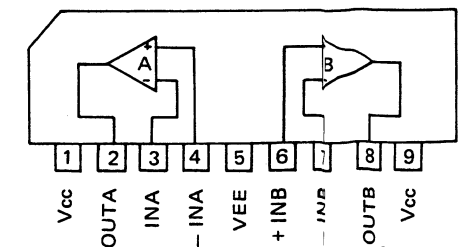
● KDA0316LN (D/A CONVERTOR) : IC501
* OPTIONAL



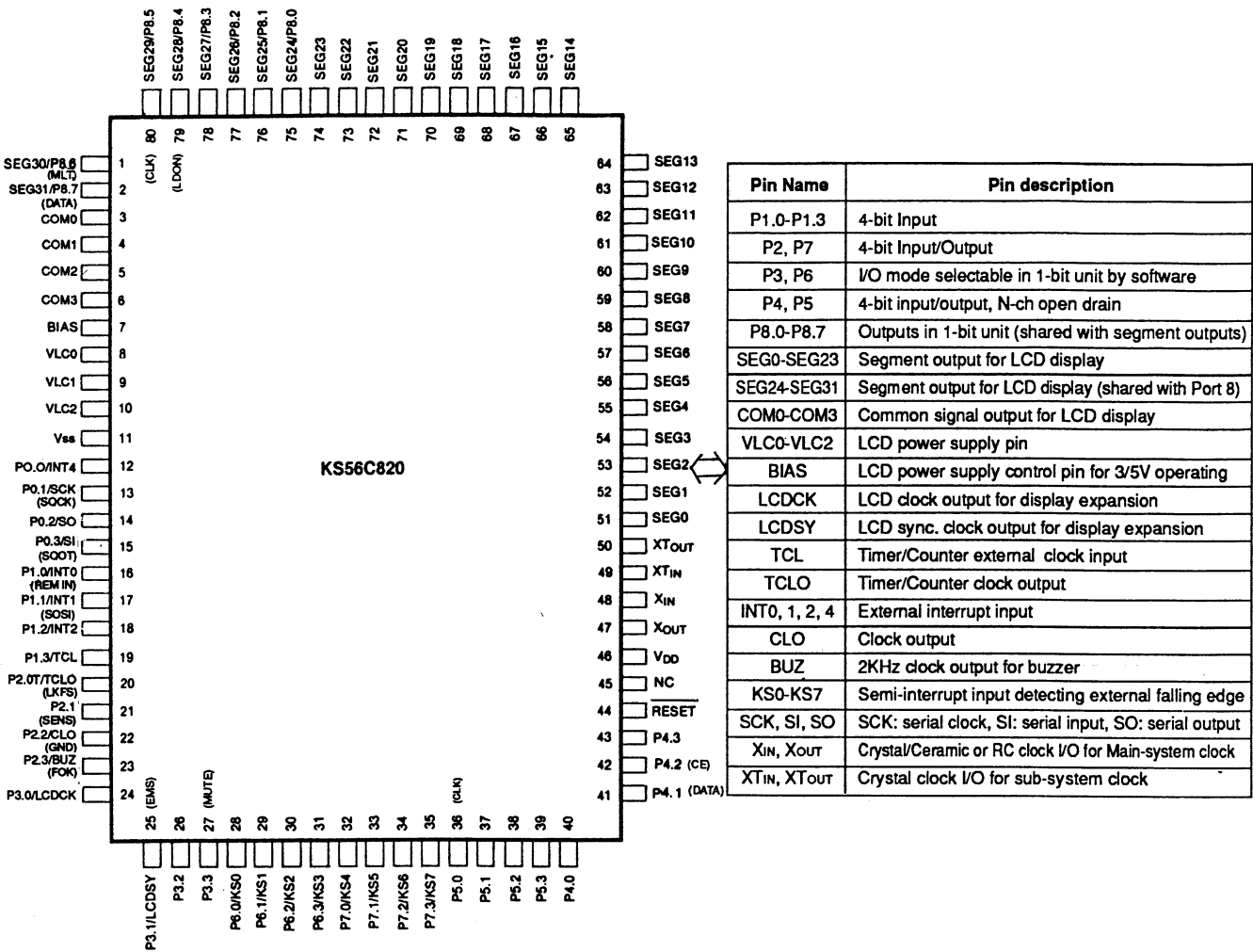
● LC7881 (D/A CONVERTOR) : IC501
* OPTIONAL



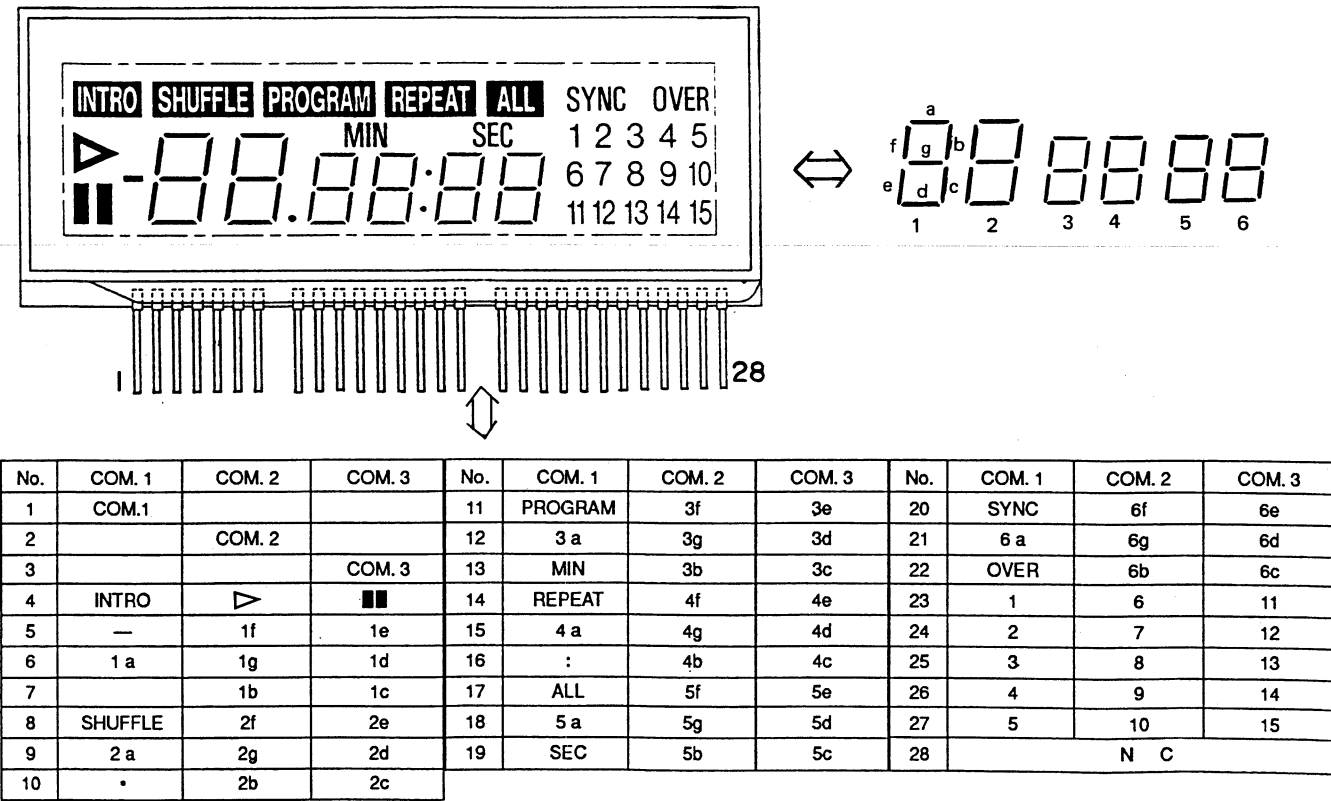
● NJM2068SD (OP AMP) : IC502, 503



● KS56C820 (MICOM) : IC601



● HLC8036 (CD LCD) : LCD1



SERVICING NOTE

1. Prevent shock hazard by unplugging power supply cord before opening cabinet.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of unit need to be cleaned.
4. When replacing parts with safety features built in, be sure to use specified parts with same specs only.
5. Avoid repairing the set near TV or any other magnetic forces.
6. Disconnect plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic source when using control IC.
8. Be sure not to separate the pick-up from the unit.

HANDLING THE OPTICAL PICK-UP

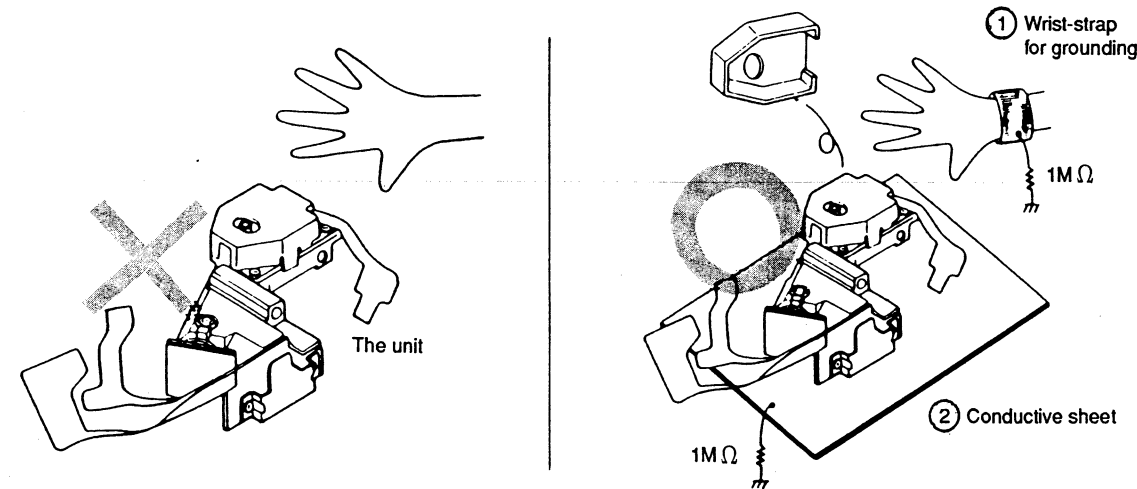
The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

1. Place a conductive sheet on the work bench (The black sheet used as wrapping for repair parts).
2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
3. Place your hands on the conductive sheet (This gives them the same ground as the sheet).
4. Remove the optical pick up block.
5. Perform work on top of the conductive sheet.

Be careful not to let your clothes or any other static sources to touch the unit.

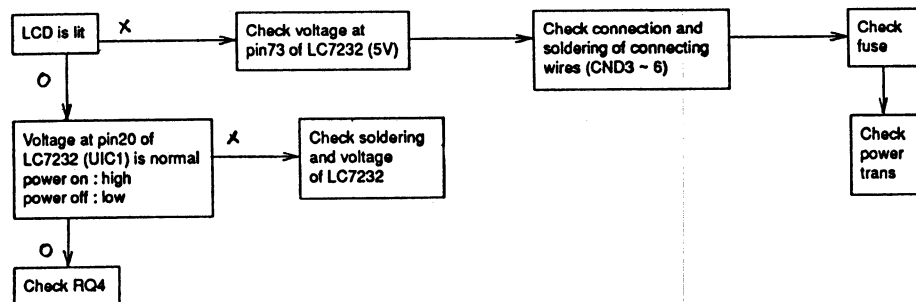
- * Be sure to put on a wrist strap grounded to the sheet.
- * Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.



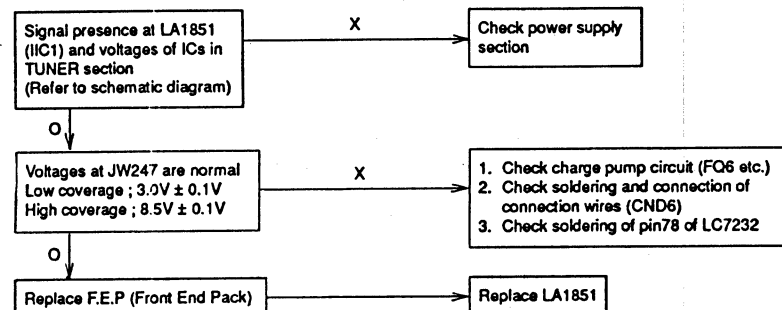
■ TROUBLE SHOOTING

1. MAIN

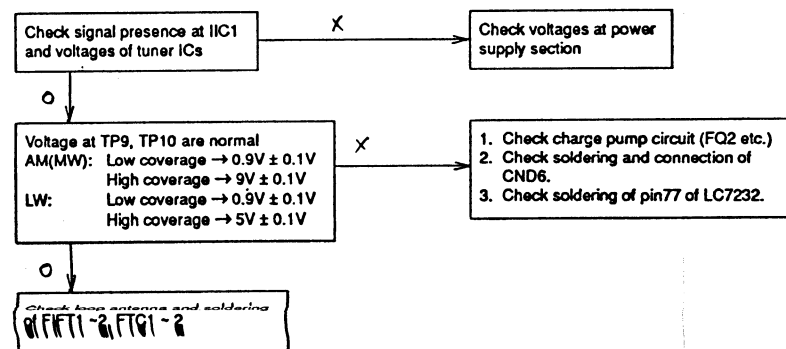
1) POWER PROBLEM



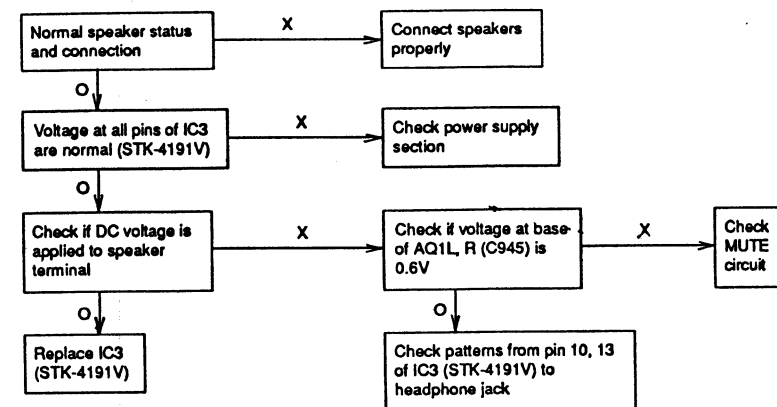
2) NO AUDIO ON FM MODE



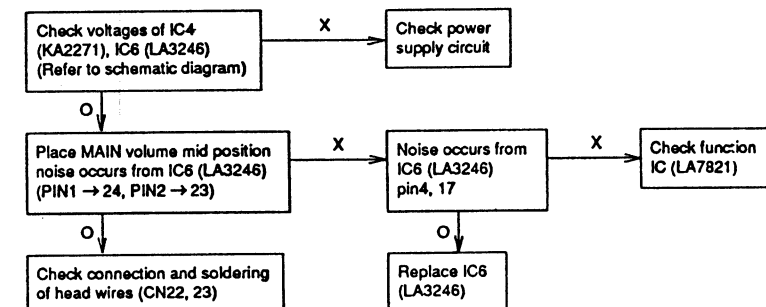
3) NO AUDIO ON AM



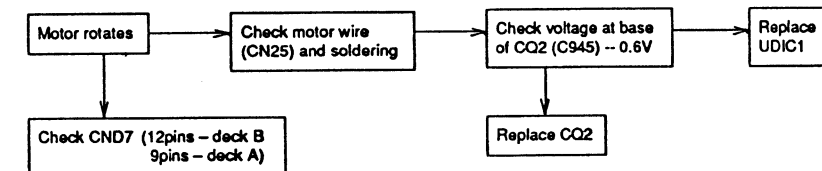
4) AUDIO OUTPUT PROBLEM



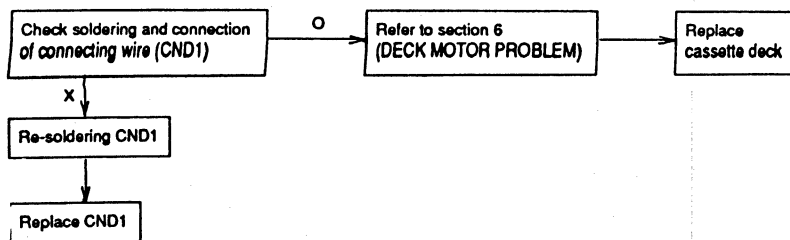
5) TAPE NOT PLAYING



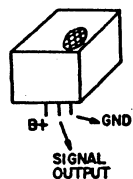
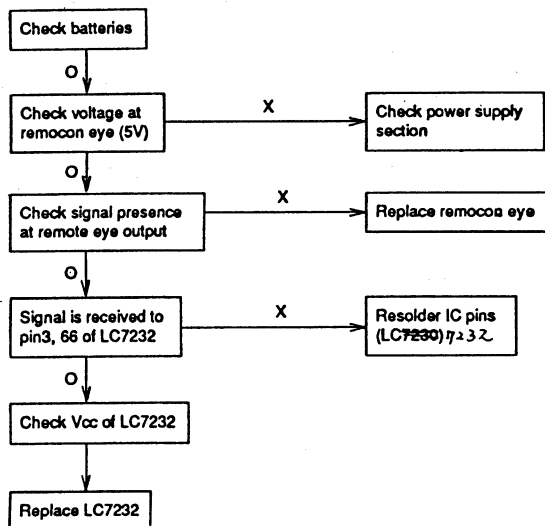
6) DECK MOTOR PROBLEM



7) CASSETTE DECK PROBLEM



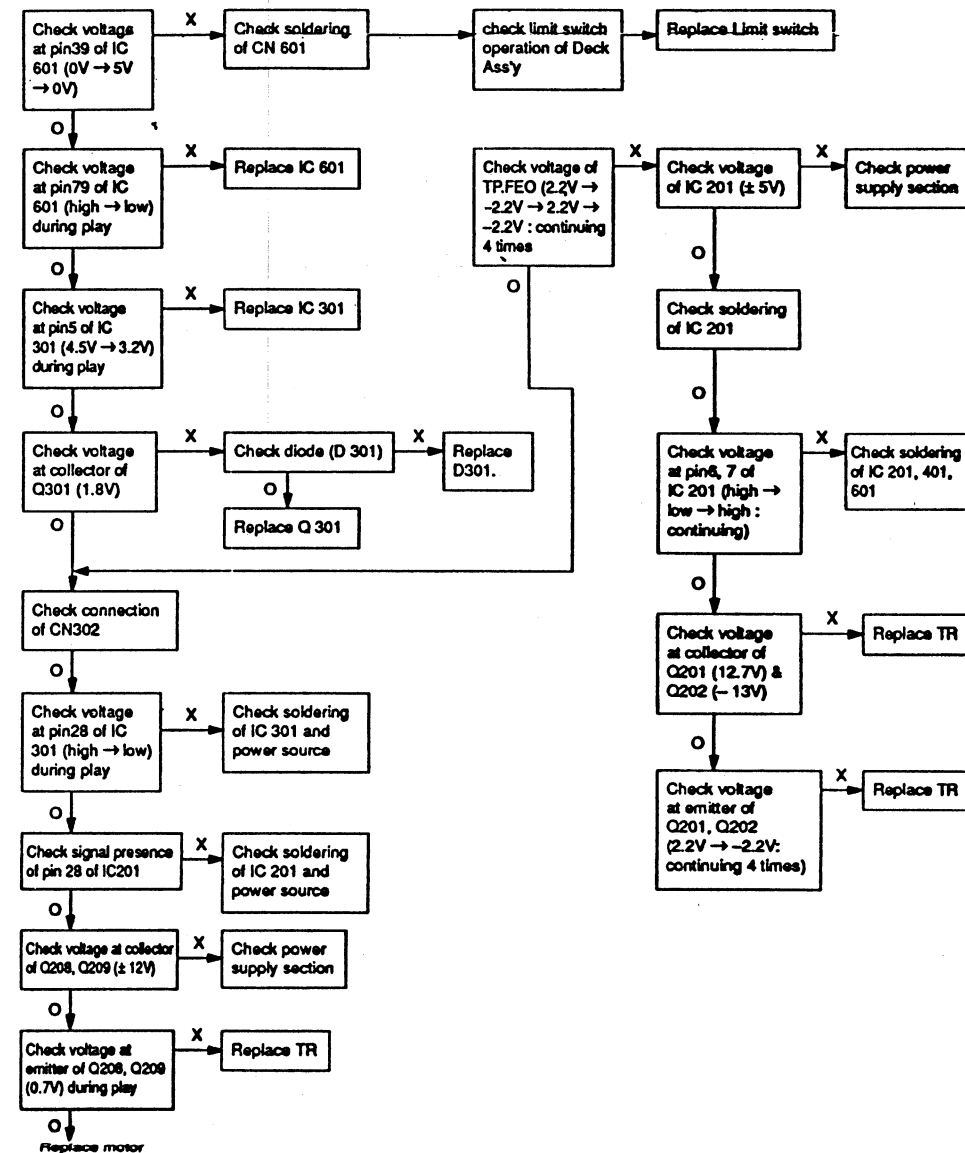
8) REMOTE CONTROL PROBLEM



2. CD

* Be sure not to use a warped or dirt-build up disc in troubleshooting.

1) DISC DOESN'T ROTATE



2) LEAD IN NOT WORKING

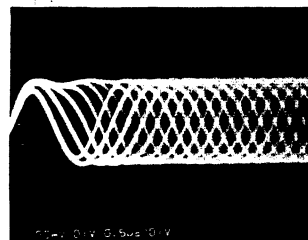
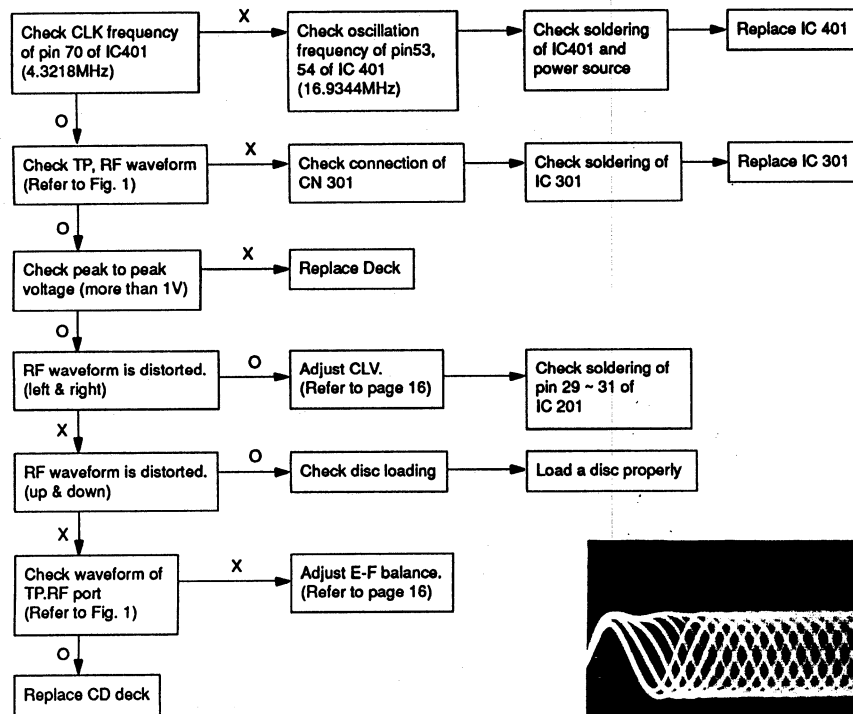


FIG. 1

3) DISPLAY NOT WORKING

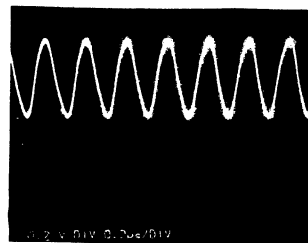
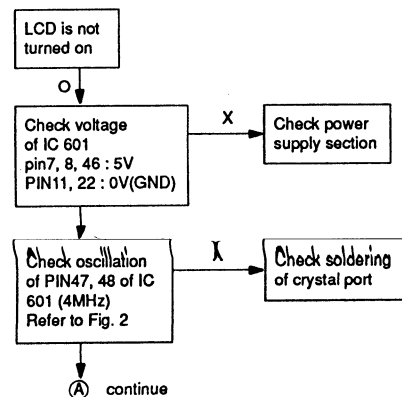


FIG. 2

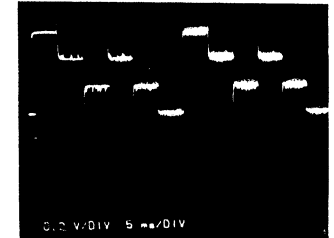
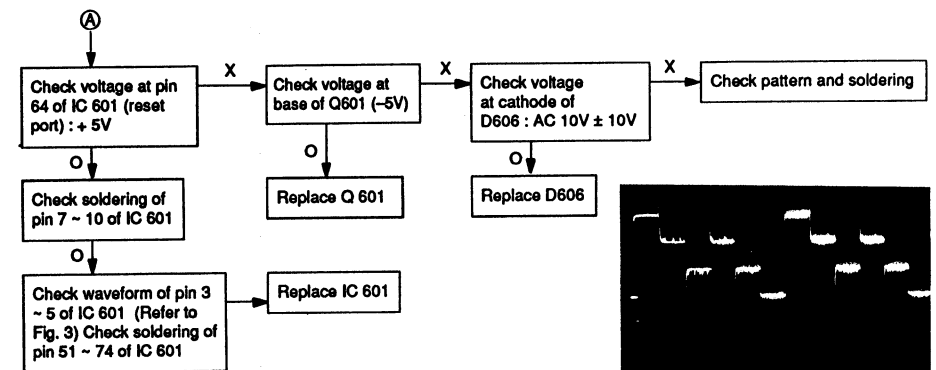


FIG. 3

4) SOUND NO OUTPUT

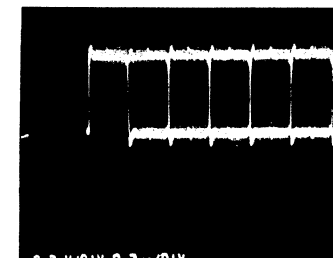
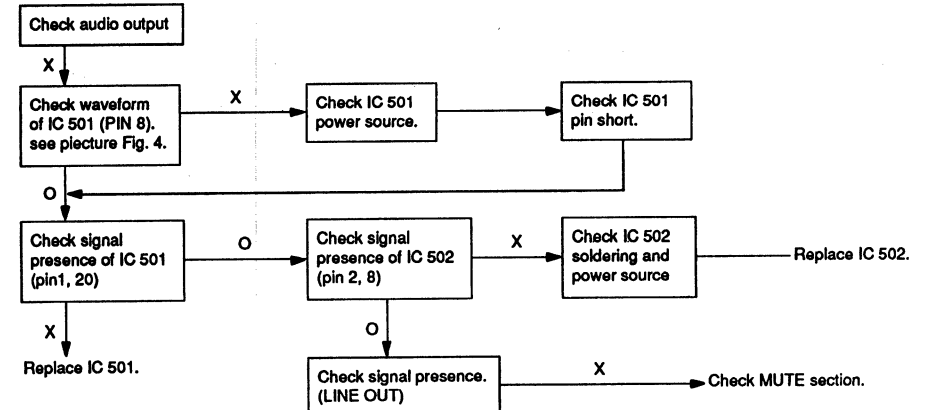
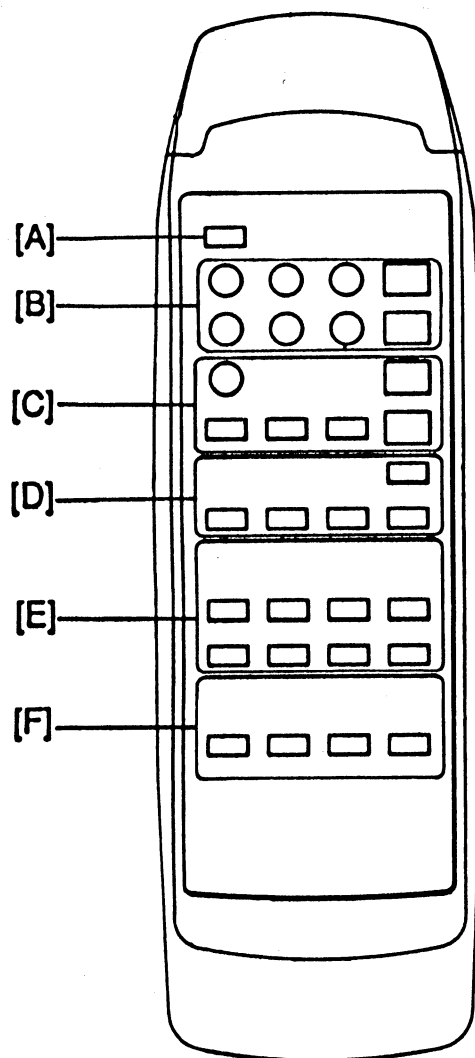


FIG. 4

FERNBEDIENUNG



FERNBEDIENUNG

- [A]. **POWER** = Ein-/Ausschalten der Anlage
- [B]. **AMP** = Funktionstasten für Verstärkerteil
- [C]. **TUNER** = Funktionstasten für Radioteil
- [D]. **DECK-A** = Funktionstasten für DECK „A“
- [E]. **DECK-B** = Funktionstasten für DECK „B“
- [F]. **CDP** = Funktionstasten für CD-Spieler

Die Infrarot-Fernbedienung erlaubt ein müheloses Umschalten auf die verschiedenen Funktionen der Anlage wie CD-Spieler und TUNER Betrieb, Regeln der Lautstärke, ferner Aufrufen der Sender.

Achtung: Zum sicheren Arbeiten der Fernbedienung sollten Sie direkten starken Lichteinfall in den Empfangssensor vermeiden. Außerdem sollte immer direkte Sicht zum Empfangssensor bestehen.

Einsetzen der Batterien

Öffnen Sie das rückseitige Batteriefach [G] (Verschlußnase in Pfeilrichtung schieben).

2 Batterien Mignonzellen 1,5 V (IEC R6) mit richtiger Polarität (Batterieboden zu den Spiralfedern) einsetzen.

Hinweis: Erneuern Sie den Batteriesatz, wenn einzelne Fernbedienungsbefehle nicht oder nicht richtig ausgeführt werden.

Betrieb

Das Infrarotfenster ist auf den Fernbedienungssensor REMOTE SENSOR (5) zu richten. Achten Sie darauf, daß kein direktes Sonnenlicht auf den Sensor fällt. Außerdem muß freie Sicht zum Empfänger Sensor (5) bestehen.

Die einzelnen Funktionen bzw. Symbole der Fernbedienung entsprechen denen des Gerätes bzw. den Tasten direkt am Verstärker.